As per the competency-based
Second Professional B.A.M.S. prescribed by NCISM

VOLUME
II

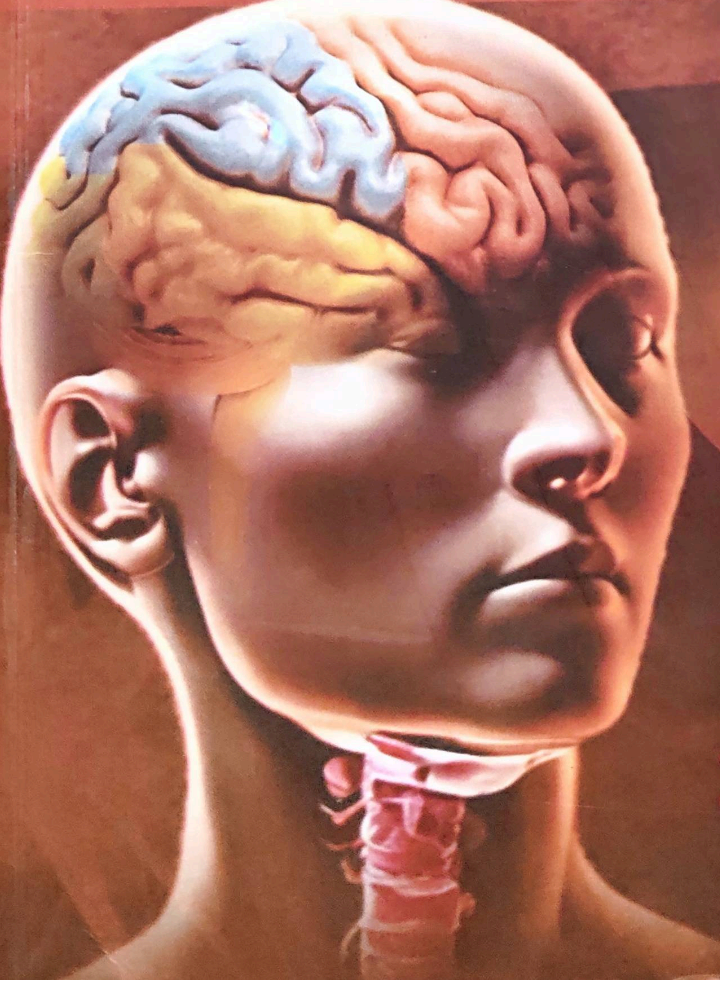
With
MCQ's

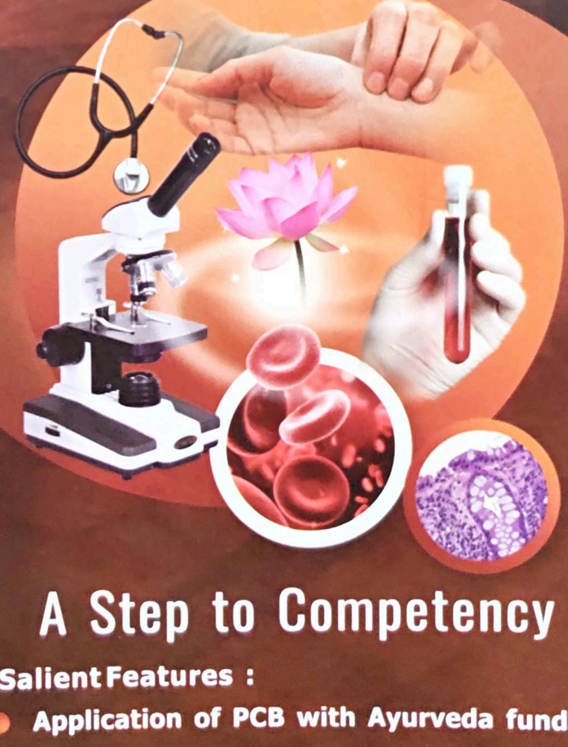
GOPIKRISHNA S. ACHARYA'S

# *Atanka Prakasha*

# Textbook of
# ROGA NIDANA and VIKRITI VIGYAN

## (Principles and Practices of Ayurveda Diagnostics)





A Step to Competency

**Salient Features :**

- Application of PCB with Ayurveda fundamentals.
- Clear cut understanding of purpose of the subject in current era.

CHAUKHAMBHA PRAKASHAK

# Course curriculum for Second Professional BAMS
# (PRESCRIBED BY NCISM)
# Roga Nidan Evam Vikriti Vigyan

**Course Code and Name of Course**

| Course code | Name of Course |
|---|---|
| AyUG-RN | Roga Nidan evam Vikriti Vigyan |

**Table 1- Course learning outcomes and matched PO**

| SR1<br>CO<br>No | A1<br>Course learning Outcomes (CO) AyUG-RN<br>At the end of the course AyUG-RN, the students should be able to- | B1<br>Course learning Outcomes matched with program learning outcomes |
|---|---|---|
| CO1 | Identify the morbidities in accordance with principles of Ayurveda pathology (vikriti vigyan siddhanta) | PO1 |
| CO2 | Describe the basic, general, and systemic pathological process thereby applying it in reaching a diagnosis | PO2,PO3 |
| CO3 | Perform appropriate clinical examination (pareeksha) utilizing Ayurveda and contemporary principles (samakalina siddhanta) | PO2,PO3,PO4 |
| CO4 | Order and interpret various diagnostic laboratory investigations and imaging | PO2,PO3 |
| CO5 | Diagnose and present the case with clinical reasoning (naidanika tarka) | PO5 |
| CO6 | Follow and advise advancements in diagnosis (vyadhi vinischaya) and prognosis (sadhya asadhyata) in clinical practice (naidanika adhyayana) | PO7 |
| CO7 | Communicate effectively with the patient (rugna), relatives (bandhujan) and other stakeholders (anya hita dhaaraka) | PO8 |
| CO8 | Demonstrate ethics (sadvritta), compassion (karuna) and possess qualities of a clinician (vaidya guna) | PO6,PO9 |

**Table 2 : Contents of Course**

**Paper 2 : Vyadhi Vigyan, contemporary understanding and updates**

| Sr. No | A2<br>List of Topics | B2<br>Term | C2<br>Marks | D2<br>Lecture hours | E2<br>Non-Lecture hours |
|---|---|---|---|---|---|
| 29 | 1. Agnimandya - Ajeerna, Anaha, Adhmana, Atopa | 2 | 43 | 1 | 0 |
| 30 | 2. Chhardi | 2 | | 1 | 0 |
| 31 | 3. Amlapitta | 2 | | 2 | 0 |
| 32 | 4. Shoola - Parinama Shoola, Annadrava Shoola | 2 | | 1 | 0 |
| 33 | 5. Atisara and Pravahika | 2 | | 3 | 1 |
| 34 | 6. Grahani | 2 | | 2 | 1 |
| 35 | 7. Visuchika, Alasaka, Vilambika | 2 | | 1 | 0 |
| 36 | 8. Common GIT diseases - Ulcerative dyspepsia and Non-ulcerative dyspepsia, Irritable Bowel Syndrome, Inflammatory Bowel Diseases | 2 | | 1 | 4 |

| Sr. No | A2<br>List of Topics | B2 Term | C2 Marks | D2 Lecture hours | E2 Non-Lecture hours |
|---|---|---|---|---|---|
| 37 | 9. Mutrakrichhra | 2 | 25 | 2 | 1 |
| 38 | 10. Mutraghata | 2 |  | 3 | 1 |
| 39 | 11. Common Urinary diseases - Urinary Tract Infection, Prostatomegaly, Nephrotic syndrome, Nephritic syndrome, Acute Kidney Injury and Chronic Kidney Disease | 2 |  | 1 | 6 |
| 40 | 12. Hikka | 2 |  | 1 | 0 |
| 41 | 13. Shwasa | 2 |  | 2 | 1 |
| 42 | 14. Kasa | 2 |  | 2 | 0 |
| 43 | 15. Rajayakshma & Shosha | 2 |  | 3 | 0 |
| 44 | 16. Common lung disorders - Pneumonia, Chronic Obstructive Pulmonary Disease, Pleural effusion, Bronchiectasis | 2 |  | 1 | 4 |
| 45 | 17. Jwara - Jwarabheda - Doshaja and Agantuja (Abhishanga jwara), Vishama Jwara, Punaravartaka Jwara, Jwara avastha - Ama, Pachyamana and Nirama Jwara | 2 |  | 4 | 1 |
| 46 | 18. Masurika – Romantika | 2 |  | 1 | 0 |
| 47 | 19. Fever - A. General mechanism of Fever. B. Introduction to Eruptive fevers - Measles, Chicken pox, Rubella, Hand foot mouth disease, Herpes zoster C. Parasitic fevers – Filariasis, Malaria, D. Detailed description of Common infective fevers – Typhoid, Dengue, Influenza, Chikungunya, E. Common regional disorders presenting with fever | 2 |  | 1 | 6 |
| 48 | 20. Pandu | 2 |  | 2 | 0 |
| 49 | 21. Raktapitta | 2 |  | 1 | 1 |
| 50 | 22. Hematopoietic diseases - Anaemia, Nutritional anaemia, Thalassemia, Sickle cell, Anaemia, Leukaemia, Thrombocytopenia | 2 |  | 1 | 6 |
| 51 | 23. Hridroga | 2 |  | 1 | 1 |
| 52 | 24. Shotha | 2 |  | 2 | 0 |
| 53 | 25. Cardiovascular disorders - Coronary Artery Disease (Ischemic Heart Disease, and Myocardial Infarction) and Congestive cardiac failure | 2 |  | 1 | 5 |
| 54 | 26. Kamala | 2 |  | 2 | 0 |
| 55 | 27. Udara Roga | 2 |  | 2 | 1 |
| 56 | 28. Hepatobiliary diseases - Liver cirrhosis, Alcoholic and Non - Alcoholic Liver Disease, Hepatitis, Jaundice and Ascites | 2 |  | 1 | 2 |
| 57 | 29. Kushtha - Maha Kushtha & Kshudra Kushtha (According to Charaka) | 3 | 32 | 3 | 1 |
| 58 | 30. Sheetapitta | 3 |  | 1 | 0 |
| 59 | 31. Shwitra | 3 |  | 1 | 0 |
| 60 | 32. Visarpa | 3 |  | 2 | 0 |
| 61 | 33. Skin diseases - Allergic disorders - Eczema, Urticaria; Squamous lesions - Psoriasis, Lichen planus; Bullous lesion – Pemphigus and Pemphigoid; Mycotic skin diseases; Leprosy; Vitiligo; Cellulitis | 3 |  | 1 | 6 |
| 62 | 34. Galaganda | 3 |  | 1 | 0 |
| 63 | 35. Thyroid disorders - Hypothyroidism and hyperthyroidism | 3 |  | 1 | 1 |
| 64 | 36. Sthoulya – Karshya | 3 |  | 1 | 0 |
| 65 | 37. Obesity | 3 |  | 1 | 1 |
| 66 | 38. Prameha | 3 |  | 2 | 1 |
| 67 | 39. Diabetes Mellitus and Pancreatitis | 3 |  | 1 | 1 |

| Sr. No | A2<br>List of Topics | B2 Term | C2 Marks | D2 Lecture hours | E2 Non-Lecture hours |
|---|---|---|---|---|---|
| 68 | 40. Vatavyadhi - Samanya nidana, Samanya purvarupa, Samanya lakshana | 3 | | 1 | 0 |
| 69 | 41. Snayugata vata - Snayugata vata, Akshepaka – Apatanaka; Ardita, Pakshaghata, Kampavata, Gridhrasi, Vishwachi, Pangutwa | 3 | | 4 | 2 |
| 70 | 42. Common neurologic and spine disorders - Common neurologic diseases: Parkinson's disease, Stroke, Bell's Palsy, Motor Neuron Disease, Transverse myelitis, Epilepsy (Organic). Common Spine disorders: Lumbago- Sciatica syndrome, Brachial neuralgia, Cervical and Lumbar Spondylosis | 3 | | 2 | 4 |
| 71 | 43. Sandhigatavata and Asthi majja gata vata Sandhigatavata, Katigraha, Manyasthambha, Vatakantaka, Avabahuka, Amsashosha | 3 | | 1 | 0 |
| 72 | 44. Diseases of bone, joints, and muscles- Diseases of bone and Joints - Osteoarthritis, Osteoporosis. Frozen Shoulder, Calcaneal spur/ Plantar fasciitis, Tennis elbow, Carpel tunnel syndrome; Muscular diseases - Muscular Dystrophy | 3 | | 1 | 2 |
| 73 | 45. Amavata | 3 | | 2 | 0 |
| 74 | 46. Vatarakta | 3 | | 2 | 1 |
| 75 | 47. Immunological & Metabolic disorders - Rheumatic fever, Rheumatoid arthritis, SLE, Ankylosing spondylitis, Gout | 3 | | 1 | 2 |
| 76 | 48. Klaibya & Vandhyatva | 3 | | 1 | 0 |
| 77 | 49. Sexual dysfunction and Infertility | 3 | | 1 | 1 |
| 78 | 50. Unmada & Apasmara | 3 | | 3 | 0 |
| 79 | 51. Vishada | 3 | | 1 | 0 |
| 80 | 52. Murchha, and Sanyasa | 3 | | 1 | 0 |
| 81 | 53. Common Psychiatric diseases - Depression, Anxiety neurosis and Epilepsy (Non-organic) | 3 | | 1 | 0 |
| 82 | 54. Phiranga and Upadamsha | 3 | | 1 | 0 |
| 83 | 55. Syphilis & Gonorrhoea | 3 | | 1 | 1 |
| 84 | 56. Krimiroga | 3 | | 1 | 0 |
| 85 | 57. Clinical presentation of common parasitic disorders - Hook worm, Round worm, Thread worm, Pin worm | 3 | | 1 | 2 |
| 86 | 58. Khalitya & Palitya | 3 | | 1 | 0 |
| 87 | 59. Shleepada | 3 | | 1 | 0 |
| 88 | 60. Tuberculosis | 3 | | | |
| | Total Marks | | 100 | 90 hr | 70 hr |

# Contents

**Chapter Name** **Page No**

*To The Learner Of Roga Nidana & Vikriti Vigyana* *xii*
*Acknowledgement* *xiv*
*Course Curriculum* *xvi*
*List of Figures* *xvii*

**1. Agnimandya-Ajirna, Anaha, Adhmana, Atopa 1**

- Nidana of Agnimandya 2
- Samprapti Ghataka 4
- Introduction 5
- Jirnahara Lakshana 5
- Ajirna 5
- Ajirna Nidana 6
- Samprapti of Ajirna 6
- Samprapti Ghataka 6
- Samanya Lakshana of Ajirna 7
- Sankhya Samprapti of Ajirna 7
- Amajirna Lakshana 7
- Vidagdha Ajirna Lakshana 8
- Vishtabha Ajirna Lakshana 8
- Rasashesha Ajirna 8
- Upadrava of Ajirna 8
- Consequences of Amajirna, Vishtabdhajirna and Vidagdhajirna 9
- Anaha, Adhmana and Atopa 9
- Anaha 9
- Types of Anaha 9
- Amaja Anaha 9
- Purishaja Anaha 9
- Adhmana 10
- Atopa 10
- Samprapti Ghataka 10

**2. Chardi 14**

- Introduction 14
- Definition of Chardi 14
- Nidana of Chardi 14
- Samprapti Ghataka 15
- Purvarupa of Chardi 15
- Bheda of Chardi 15
- Vataja Chardi 16
- Pittjaja Chardi 16
- Lakshana of Pittaja Chardi 16
- Kaphaja Chardi 16
- Lakshana of Kaphaja Chardi 16
- Sannipataja Chardi 17
- Lakshana of Sannipataja Chardi 17
- Dvishtartha Samyogaja Chardi 17

**Chapter Name** **Page No**

- Agantuja Chardi 17
- Upadrava of Chardi 17
- Sadhyasadhyata of Chardi 18

**3. Amlapitta 20**

- Introduction 20
- Amlapitta Nidana 20
- Samprapti Ghataka 21
- Amlapitta Samanya Lakshana 21
- Urdhvaga Amlapitta 22
- Bheda of Amlapitta 22
- Adhoga Amlapitta 22
- Vataja Amlapitta 22
- Kaphaja Amlapitta 22
- Vatakaphaja Amlapitta 22
- Kaphapittaja Amlapitta 22
- Sadhyasadhyata of Amlapitta 23

**4. Shula Parinama Shula Annadrava Shula 25**

- Introduction 25
- Definition of Shula 25
- Nidana of Shula 25
- Samprapti of Shula 26
- Samprapti Ghataka 26
- Types of Shula 26
- Vataja Shula 26
- Lakshana of Vataja Shula 27
- Pittaja Shula 27
- Lakshana of Pittaja Shula 27
- Kaphaja Shula 27
- Lakshana of Kaphaja Shula 28
- Kapha Vataja Shula 28
- Kapha Pittaja Shula 28
- Vata Pittaja Shula 28
- Sannipataja Shula 28
- Amaja Shula 28
- Sadhyasadhyata of Shula 28
- Upadrava of Shula 29
- Parinama Shula 29
- Vataja Parinama Shula 29
- Pittaja Parinama Shula 29
- Kaphaja Parinama Shula 29
- Dvandvaja and Sannipataja Parinama Shula 30
- Annadrava Shula 30

**5. Atisara and Pravahika 32**

- Atisara 32

| Chapter Name | Page No |
|---|---|
| Pratyatma Lakshana of Atisara | 33 |
| Atisara Nidana | 33 |
| Samprapti of Atisara | 34 |
| Samprapti Ghataka | 34 |
| Purvarupa of Atisara | 35 |
| Sankhya Samprapti of Atisara | 35 |
| Vataja Atisara | 35 |
| Lakshana of Vataja Atisara | 36 |
| Pittaja Atisara | 36 |
| Lakshana of Pittaja Atisara | 36 |
| Kaphaja Atisara | 36 |
| Lakshana of Kaphaja Atisara | 36 |
| Sannipataja Atisara | 37 |
| Krichrasadhya Sannipataja Atisara Lakshana | 37 |
| Asadhya Sannipataja Atisara Lakshana | 38 |
| Bhayaja and Shokaja Atisara | 38 |
| Shokaja Atisara | 38 |
| Amaja Atisara | 38 |
| Raktaja Atisara | 38 |
| Samatva and Niramatva of Atisara | 39 |
| Sama Atisara Lakshana | 39 |
| Nirama Atisara Lakshana | 39 |
| Asadhya Lakshana of Atisara | 39 |
| Atisara Mukta Lakshana | 40 |
| Pravahika | 41 |
| Samprapti Ghataka | 41 |
| Types of Pravahika | 42 |
| Samatva and Niramatva in Pravahika | 42 |
| **6. Grahani** | **45** |
| Introduction | 45 |
| Pratyatma Lakshana of Grahani | 45 |
| Nidana of Grahani | 46 |
| Samprapti of Grahani | 47 |
| Samprapti Ghataka | 47 |
| Purvarupa of Grahani | 47 |
| Samanya Lakshana of Grahani | 48 |
| Types of Grahani | 48 |
| Vataja Grahani | 48 |
| Lakshana of Vataja Grahani | 49 |
| Pittaja Grahani | 49 |
| Lakshana of Pittaja Grahani | 49 |
| Kaphaja Grahani | 49 |
| Lakshana of Kaphaja Grahani | 49 |
| Sangrahani | 50 |
| Ghatiyantra Grahani | 50 |
| Samatva and Niramatva in Grahani | 50 |
| Sama Atisara Lakshana | 50 |
| Nirama Atisara Lakshana | 50 |
| Asadhya Lakshana of Grahani | 50 |
| Difference between Grahani Dosha and Grahani Roga | 51 |
| **7. Visuchika, Alasaka and Vilambika** | **54** |
| Introduction | 54 |
| Visuchika | 54 |
| Lakshana of Visuchika | 55 |
| Alasaka | 56 |
| Vilambika | 56 |
| Dandalasaka is another name of Vilambika | 56 |
| Asadhya Lakshana of Visuchika and Alasaka | 56 |
| Upadrava of Visuchika | 57 |
| **8. Common Git Diseases** | **59** |
| Introduction | 59 |
| Ulcerative Dyspepsia | 60 |
| Non Ulcerative Dyspepsia | 61 |
| Irritable Bowel Syndrome | 62 |
| Inflammatory Bowel Disease | 63 |
| **9. Mutrakrichra** | **69** |
| Introduction | 69 |
| Nidana of Mutrakrichra | 69 |
| Samprapti of Mutrakrichra | 70 |
| Samprapti Ghataka | 70 |
| Pratyatma Lakshana (Cardinal feature) of Mutrakrichra | 70 |
| Sankhya Samprapti | 70 |
| Vataja Mutrakrichra | 71 |
| Pittaja Mutrakrichra | 71 |
| Kaphaja Mutrakrichra | 71 |
| Sannipataja Mutrakrichra | 71 |
| Shalyaja Mutrakrichra | 71 |
| Purishaja Mutrakrichra | 71 |
| Shukraja Mutrakrichra | 71 |
| Ashmarijanya Mutrakrichra | 72 |
| Sharkarajanya Mutrakrichra | 72 |
| **10. Mutraghata** | **74** |
| Introduction | 74 |
| Nidana of Mutraghata | 74 |
| Pratyatma Lakshana of Mutraghata | 75 |
| Sankhya Samprapti of Mutraghata | 75 |
| Samprapti Ghataka of Mutraghata | 75 |
| Vatakundalika | 75 |
| Ashthila | 76 |
| Vatabasti | 76 |
| Mutra Atita | 76 |
| Mutra Jathara | 76 |
| Mutra Utsanga | 77 |
| Mutra Kshaya | 77 |
| Mutra Granthi | 77 |
| Mutra Shukra | 77 |
| Ushnavata | 77 |
| Mutra Sada | 77 |
| Vid Vighata | 78 |
| Bastikundala | 78 |
| Sadhyasadhyata of Mutraghata | 78 |
| **11. Common Urinary Diseases** | **81** |
| Introduction | 81 |
| Urinary Tract Infection | 81 |
| Prostatomegaly | 82 |
| Nephrotic Syndrome | 83 |

**Chapter Name** **Page No**

- Nephritic Syndrome 84
- Acute Kidney Injury 85
- Chronic Kidney Disease 86

**12. Hikka** 89

- Introduction 89
- Nidana of Hikka 90
- Samprapti of Hikka 92
- Samprapti Ghataka 92
- Purvarupa 92
- Types of Hikka 92
- Maha Hikka 92
- Gambhira Hikka 93
- Vyapeta Hikka 93
- Kshudra Hikka 93
- Annaja Hikka 94
- Yamala Hikka 94
- Asadhya Lakshana of Hikka 94

**13. Shvasa** 97

- Introduction 97
- Nidana of Shvasa 97
- Samprapti of Shvasa 100
- Samprapti Ghataka 100
- Purvarupa of Shvasa 100
- Types of Shvasa 101
- Mahashvasa 101
- Urdhva Shvasa 101
- Chinna Shvasa 101
- Tamaka Shvasa 102
- Types of Tamaka Shvasa 103
- Kshudra Shvasa 103
- Sadhyasadhyata 103
- Differential diagnosis of Shvasa 103

**14. Kasa** 108

- Introduction 108
- Derivation of Kasa 109
- Nidana of Kasa 109
- Samprapti of Kasa 110
- Samprapti Ghataka 110
- Purvarupa of Kasa 111
- Types of Kasa 111
- Vataja Kasa 111
- Lakshana of Vataja Kasa 111
- Pittaja Kasa 112
- Lakshana of Pittaja Kasa 112
- Kaphaja Kasa 112
- Lakshana of Kaphaja Kasa 113
- Kshataja Kasa 113
- Lakshana of Kshataja Kasa 113
- Kshayaja Kasa 113
- Lakshana of Kshayaja Kasa 114
- Sadhyasadhyata of Kasa 114

**15. Rajayakshma and Shosha** 117

- Introduction 117

**Chapter Name** **Page No**

- Nidana of Rajayakshma 118
- Samprapti of Rajayakshma 119
- Purvarupa of Rajayakshma 119
- Sahasajanya Rajayakshma 120
- Sandharanajanya Rajayakshma 121
- Kshayajanya Shosha 121
- Vishamashanajanya Shosha 122
- Lakshana of Rajayakshma based on Ayatana of Rajayakshma 122
- Trirupa Rajayakshma 123
- Shadrupi Rajayakshma 123
- Ekadasha Rupi Rajayakshma 123
- Shosha 123
- Nidana of Shosha 124
- Types of Shosha 124
- Vyavayajanya Shosha 124
- Shoka Shosha 124
- Jara (Sthaviirya or Vardhakya) Shosha 125
- Adhva Shosha 125
- Vyayama Shosha 125
- Vrana Shosha 125
- Upavasajanya Shosha 125
- Urakshatajanya Shosha 126

**16. Common Lung Disorders** 129

- Introduction 129
- Pneumonia 129
- Chronic Obstructive Pulmonary Diseases (COPD) 130
- Pleural Effusion 132
- Bronchiectasis 133

**17. Jvara** 136

- Introduction 136
- Nidana of Jvara 138
- Samprapti of Jvara 140
- Samprapti Ghataka 140
- Purvarupa 141
- Ama, Pachyamana and Nirama Jvara Lakshana 144
- Types of Tritiyaka Jvara 150
- 8 types of Jvara 153

**18. Masurika Romantika** 160

- Introduction 160
- Masurika 160
- Romantika 161
- Causative factors of Masurika 161
- Samprapti 162
- Samprapti Ghataka 162
- Purvarupa 162
- Samanya Lakshana of Masurika 162
- Types of Masurika 163
- Lakshana of Masurika Bheda 163
- Pittaja Masurika 163
- Raktaja Masurika 163
- Kaphaja Masurika 163
- Tridoshaja Masurika 163
- Dhatugata Masurika 163

| Chapter Name | Page No |
|---|---|
| Raktagata Masurika | 164 |
| Mamsagata Masurika | 164 |
| Medogata Masurika | 164 |
| Asthi Majjagata Masurika | 164 |
| Shukragata Masurika | 164 |
| Sadhyasadhyata | 164 |
| Introduction | 164 |
| Samprapti Ghataka | 165 |
| **19. Fever** | **167** |
| Clinical thermometer | 167 |
| Pathological mechanism of fever | 168 |
| Mechanism of temperature and fever | 169 |
| Approach to the patient of fever | 169 |
| Measles | 170 |
| Chicken Pox | 171 |
| Herpes Zoster | 172 |
| Hand Foot Mouth Disease | 172 |
| Rubella | 173 |
| Malaria | 173 |
| Filariasis | 176 |
| Flu | 178 |
| Dengue | 178 |
| Epidemiology | 178 |
| Dengue Hemorrhagic Fever | 179 |
| Leptospirosis | 179 |
| Chikun Gunya | 179 |
| Aetiology | 179 |
| TYPHOID | 180 |
| Pathology | 180 |
| Other Regional Disorders With Fever | 181 |
| **20. Pandu** | **185** |
| Introduction | 185 |
| Samanya Nidana of Pandu | 186 |
| Samprapti of Pandu | 187 |
| Samprapti Ghataka | 188 |
| Purvarupa of Pandu | 188 |
| Samanya Lakshana of Pandu | 189 |
| Sankhya Samprapti of Pandu | 190 |
| Vataja Pandu Lakshana | 190 |
| Pittaja Pandu Lakshana | 191 |
| Kaphaja Pandu Lakshana | 191 |
| Sannipataja Pandu | 191 |
| Asadhya Lakshana of Pandu | 192 |
| Upadrava of Pandu | 193 |
| **21. Raktapitta** | **195** |
| Introduction | 195 |
| Nidana of Raktapitta | 195 |
| Samprapti of Raktapitta | 197 |
| Samprapti Ghataka | 198 |
| Upadrava of Raktapitta | 199 |
| Sadhyasadhyata of Raktapitta | 200 |
| **22. Haemopoietic Disorders** | **203** |
| Microcytic anemia | 203 |

| Chapter Name | Page No |
|---|---|
| Normocytic anemia | 204 |
| Macrocytic anemia | 205 |
| Nutritional Anaemia | 205 |
| Thalassemia | 205 |
| Sickle Cell Anaemia | 205 |
| Leukemia | 206 |
| Thrombocytopenia | 207 |
| **23. Hridroga** | **209** |
| Introduction | 209 |
| Nidana of Hridroga | 209 |
| Samprapti of Hridroga | 211 |
| Samprapti Ghataka of Hridroga | 211 |
| Samprapti chart | 212 |
| Samanya Lakshana of Hridroga | 212 |
| Sankhya Samprapti of Hridroga | 212 |
| Vataja Hridroga: | 213 |
| Pittaja Hridroga | 213 |
| Kaphaja Hridroga | 214 |
| Lakshana of Kaphaja Hridroga | 214 |
| Tridoshaja Hridroga | 214 |
| Krimija Hridroga | 214 |
| Upadrava of Hridroga | 215 |
| Sadhyasadhyata of Hridroga | 215 |
| **24. Shotha** | **217** |
| Introduction | 217 |
| Nidana of Shotha | 217 |
| Nidana of Agantuja Shotha | 219 |
| Samprapti of Shotha | 219 |
| Samprapti Ghataka | 219 |
| Purvarupa of Shotha | 219 |
| Samanya Lakshana of Shotha | 220 |
| Bheda of Shotha | 220 |
| Vataja Shotha | 220 |
| Pittaja Shotha | 220 |
| Kaphaja Shotha | 221 |
| Clinical manifestation and site of the lesion as per Madhava Nidana | 221 |
| Introduction | 224 |
| **25. Cardiovascular Disorders** | **224** |
| Coronary Artery Disease, IHD & MI | 225 |
| Ischaemic Heart Disease & Myocardial Infarction | 225 |
| Congestive Cardiac Failure (CCF) | 226 |
| **26. Kamala** | **230** |
| Introduction | 230 |
| Nidana and Samprapti of Koshtha Shakhashrita Kamala | 230 |
| Samprapti of Kamala | 231 |
| Samprapti Ghataka | 232 |
| Types of Kamala | 232 |
| Kumbha Kamala Lakshana | 233 |
| Halimaka Lakshana | 234 |
| Panaki Lakshana | 234 |
| Upadrava of Kamala | 234 |
| Approach to the patient of hepatobiliary dysfunction | 234 |

| Chapter Name | Page No |
|---|---|
| **27. Udara Roga** | **237** |
| Introduction | 237 |
| Pratyatma Lakshana of Udara | 237 |
| Nidana of Udara | 238 |
| Samprapti of Udara | 240 |
| Samprapti Ghataka | 240 |
| Purvarupa of Udara | 240 |
| Samanya Lakshana of Udara | 241 |
| Bheda of Udara | 241 |
| Vataja Udara | 241 |
| Lakshana of Vataja Udara | 242 |
| Pittaja Udara | 242 |
| Lakshana of Pittaja Udara | 242 |
| Kaphaja Udara | 242 |
| Lakshana of Kaphaja Udara | 243 |
| Sannipataja Udara | 243 |
| Lakshana of Sannipataja Udara | 243 |
| Plihodara | 243 |
| Lakshana of Plihodara | 243 |
| Baddha Gudodara | 244 |
| Lakshana of Baddhagudodara | 244 |
| Chidrodara | 244 |
| Lakshana of Chidrodara | 244 |
| Jalodara | 245 |
| Lakshana of Jalodara | 245 |
| Ajatodaka Avastha of Jalodara | 245 |
| Upadrava of Udara | 246 |
| Asadhya Lakshana of Udara | 246 |
| Sadhyasadhyata of Udara | 247 |
| Splenomegaly | 247 |
| Causes of splenomegaly | 248 |
| Differential diagnosis of splenomegaly | 248 |
| Hepatomegaly | 248 |
| Causes of Hepatomegaly | 249 |
| Differential diagnosis of Hepatomegaly | 249 |
| Intestinal Obstruction | 249 |
| Injury to the abdomen | 251 |
| Ascites | 254 |
| **28. Hepatobiliary Diseases** | **259** |
| Introduction | 259 |
| Cirrhosis of Liver | 259 |
| ALD and NALD | 260 |
| Hepatitis | 261 |
| Jaundice | 262 |
| **29. Kushtha Mahakushtha and Kshudrakushtha** | **265** |
| Introduction | 265 |
| Definition of Kushtha | 265 |
| Nidana of Kushtha | 265 |
| Samprapti of Kushtha | 267 |
| Samprapti Ghataka | 267 |
| Purvarupa of Kushtha | 268 |
| Types of Kushtha | 269 |
| Kapala | 269 |
| Udumbara | 269 |
| Mandala | 269 |
| Rshyajihva | 270 |
| Pundarika | 270 |
| Sidhma | 270 |
| Kakanaka | 270 |
| Kshudrakushtha | 271 |
| Charmakhya | 271 |
| Kitibha | 271 |
| Vaipadika | 271 |
| Alasaka | 272 |
| Dadru | 272 |
| Charmadala | 272 |
| Pama | 272 |
| Visphota | 272 |
| Shataru | 273 |
| Vicharchika | 273 |
| Dosha dominance and Lakshana of Kushtha | 273 |
| Dhatugata Kushtha | 275 |
| Upadrava of Kushtha | 276 |
| Sadhyasadhyata of Kushtha | 276 |
| **30. Shitapitta, Udarda and Kotha** | **280** |
| Introduction | 280 |
| Shitapitta | 280 |
| Purvarupa of Shitapitta | 281 |
| Lakshana of Shitapitta and Udarda | 281 |
| Udarda | 281 |
| Description of Utkotha and Kotha | 282 |
| **31. Shvitra** | **284** |
| Introduction | 284 |
| Clinical features of Shvitra | 284 |
| Sadhyasadhyata of Shvitra | 285 |
| **32. Visarpa** | **286** |
| Introduction | 286 |
| Pratyatma Lakshana of Visarpa | 286 |
| Nidana of Visarpa | 287 |
| Samprapti of Visarpa | 288 |
| Samprapti Ghataka | 288 |
| Types of Visarpa | 289 |
| Vataja Visarpa | 289 |
| Lakshana produced in Vataja Visarpa | 289 |
| Pittaja Visarpa | 289 |
| Lakshana of Pittaja Visarpa | 290 |
| Kaphaja Visarpa | 290 |
| Lakshana of Kaphaja Visarpa | 290 |
| Agni Visarpa | 290 |
| Kardama Visarpa | 291 |
| Granthi Visarpa | 292 |
| Sannipataja Visarpa | 293 |
| Kshataja Visarpa | 293 |
| Sadhyasadhyata of Visarpa | 293 |
| **33. Skin Diseases** | **296** |
| Introduction | 296 |

**Chapter Name** **Page No**
- Eczema 297
- Urticaria 298
- Psoriasis 299
- Lichen Planus 300
- Pemphigus 300
- Pemphigoid 301
- Mycotic Skin Diseases 301
- Leprosy 302
- Vitiligo 303
- Cellulitis 304

**34. Galaganda** **307**
- Introduction 307
- Definition 307
- Nidana of Galaganda 308
- Samprapti of Galaganda 308
- Sankhya Samprapti 309
- Vataja Galaganda 309
- Kaphaja Galaganda 309
- Medoja Galaganda 309
- Asadhya Lakshana of Galaganda 309

**35. Thyroid Disorders** **312**
- Hyperthyroidism 312
- Hypothyroidism 313
- Investigations and interpretation 315

**36. Sthaulya Karshya** **316**
- Introduction 316
- Definition of Atisthula 316
- Nidana of Sthaulya 317
- Samprapti of Sthaulya 317
- Samprapti Ghataka of Sthaulya 318
- Lakshana of Sthaulya 318
- Introduction 318
- Definition of Karshya 318
- Nidana of Karshya 319
- Lakshana of Karshya 319

**37. Obesity** **322**
- Introduction 322

**38. Prameha** **325**
- Introduction 325
- Nirukti 325
- Nidana of Prameha 326
- Samprapti of Prameha 326
- Dosha and Dushya of Prameha 326
- Samprapti Ghataka 326
- Purvarupa of Prameha 327
- Pratyatma Lakshana of Prameha 327
- Kaphaja Prameha 328
- Pittaja Prameha 328
- Vataja Prameha 329
- Upadrava of Prameha 329
- Upadrava of Pittaja Prameha 329
- Upadrava of Vataja Prameha 330

**Chapter Name** **Page No**
- Sadhyasadhyata of Prameha 330
- Asadhya Lakshana of Prameha 330

**39. Diabetes Mellitus and Pancreatitis** **333**
- Diabetes Mellitus 333
- Pancreatitis 335

**40. Vatavyadhi** **338**
- Introduction 338
- Terminology of Vatavyadhi 338
- Nidana of Vatavyadhi 338
- Samprapti of Vatavyadhi 340
- Purvarupa of Vatavyadhi 340
- Samanya Lakshana of Vatavyadhi 340

**41. Snayugata Vata** **343**
- Introduction 343
- Akshepaka 344
- Apatanaka 344
- Sadhyasadhyata of Apatanaka 344
- Apatantraka 345
- Dandapatanaka 345
- Antarayama or Abhyantara Ayama 345
- Bahirayama 345
- Ardita 346
- Nidana of Ardita 346
- Lakshana of Ardita 347
- Sadhyasadhyata of Ardita 348
- Pakshaghata 348
- Sadhyasadhyata of Pakshaghata 349
- Kampavata 350
- Gridhrasi 350
- Vishvachi 350
- Panguta 351
- Difference between Khanja and Gridhrasi 351

**42. Common Neurological and Spine Disorders** **354**
- Parkinson's Disease 354
- Stroke 355
- Bell's Palsy 357
- Motor Neuron Disease 357
- Transverse Myelitis 359
- Epilepsy (Organic) 360
- Lumbago Sciatica Syndrome 361
- Brachial Neuralgia 362
- Cervical Spondylosis 363
- Lumbar Spondylosis 364

**43. Sandhigata Vata and Asthimajjagata Vata** **368**
- Sandhigata Vata 368
- Samprapti Ghataka of Sandhigata Vata 369
- Asthimajjagata Vata 370
- Samprapti Ghataka of the Asthimajjagata Vata 370

**44. Diseases of Bones, Joints and Muscles** **372**
- Osteoarthritis 372
- Osteoporosis 373

**Chapter Name** **Page No**

- Frozen Shoulder Syndrome 373
- Calcaneal Spur 374
- Plantar Fasciitis 374
- Tennis Elbow 375
- Carpal Tunnel Syndrome 376
- Muscular Diseases 377
- Muscular Dystrophy 378

**45. Amavata** 382
- Introduction 382
- Nidana of Amavata 382
- Samprapti of Amavata 383
- Samprapti Ghataka of Amavata 384
- Samanya Lakshana of Amavata 384
- Pravriddha Amavata Lakshana 385
- Bheda of Amavata 385
- Sadhyasadhyata of Amavata 385

**46. Vatarakta** 387
- Introduction 387
- Nidana of Vatarakta 387
- The Vata vitiating factors 389
- Samprapti of Vatarakta 389
- Samprapti Ghataka 390
- Purvarupa of Vatarakta 390
- Sankhya samprapti of Vatarakta 391
- Uttana Vatarakta 391
- Gambhira Vatarakta 391
- Ubhayashrita Vatarakta 392
- Vataja Vatarakta 392
- Raktaja Vatarakta 392
- Pittaja Vatarakta 392
- Kaphaja Vatarakta 392
- Samsrishta and Sannipataja Vatarakta 392
- Upadrava of Vatarakta 392
- Sadhyasadhyata of Vatarakta 394

**47. Immunological and Metabolic Disorders** 396
- Introduction 396
- Pathology 396
- Clinical features 396
- Pathophysiology 398
- Clinical features 398
- Systemic Lupus Erythematosus 400
- Ankylosing Spondylitis 401
- Gout 402

**48. Klaibya and Vandhyatva** 406
- Klaibya 406
- Nidana of Klaibya 406
- Samanya Lakshana of Klaibya 407
- Types of Klaibya 407
- Bijopaghataja Klaibya 407
- Lakshana of Bijopaghatajanya Klaibya 408
- Lakshana of Dhvajabhangajanya Klaibya 408
- Lakshana of Jarajanya Klaibya 409
- Lakshana of Kshayajanya Klaibya 409

**Chapter Name** **Page No**

- Sadhyasadhyata of Klaibya 409
- Vandhyatva 410
- Nidana of Vandhyatva 410
- Types of Vandhya 411

**49. Sexual Dysfunction and Infertility** 414
- Introduction 414
- Sexual Dysfunction 414
- Erectile Dysfunction 415
- Female Sexual Dysfunction 415
- Infertility-Male 416
- Female Infertility 417

**50. Unmada and Apasmara** 421
- Introduction 421
- Nirukti of Unmada 421
- Nidana of Unmada 422
- Samprapti of Unmada 422
- Samprapti Ghataka 423
- Purvarupa of Unmada 423
- Samanya Lakshana of Unmada 423
- Sankhya Samprapti of Unmada 424
- Vataja Unmada 424
- Pittaja Unmada Lakshana 424
- Kaphaja Unmada Lakshana 425
- Sannipataja Unmada 425
- Agantuja Unmada 425
- Introduction 425
- Nirukti 426
- Nidana of Apasmara 426
- Samprapti 427
- Purvarupa 428
- Vataja Apasmara 428
- Pittaja Apasmara 429
- Sannipataja Apasmara 429

**51. Vishada** 432
- Introduction 432
- Definitions of Vishada 432
- Nidana of Vishada 433
- Lakshana of Vishada 433

**52. Murcha and Sanyasa** 435
- Introduction 436
- Murcha 436
- Nidana and Samprapti of Murcha 436
- Samprapti Ghataka 436
- Purvarupa of Murcha 437
- Pratyatma Lakshana of Murcha 437
- Dosha dominant Murcha 437
- Raktaja Murcha 437
- Madyaja Murcha 437
- Vishaja Murcha 437
- Sanyasa 437
- Samprapti of Sanyasa 438
- Samprapti Ghataka 438

**Chapter Name** **Page No**

**53. Common Psychiatric Diseases** 441
- Depression 441
- Anxiety Neurosis 442
- Epilepsy (Non-Organic) 443

**54. Phiranga and Upadamsha** 445
- Definition of Phiranga 445
- Nidana of Phiranga 445
- Samprapti of Phiranga 445
- Sankhya Samprapti of Phiranga 445
- Bahya Phiranga 445
- Abhyantara Phiranga 446
- Upadrava of Phiranga 446
- Sadhyasadhyata of Phiranga 446
- Introduction 447
- Nidana of Upadamsha 447
- Samprapti of Upadamsha 448
- Sankhya Samprapti of Upadamsha 448
- Vataja Upadamsha 448
- Pittaja Upadamsha 448
- Kaphaja Upadamsha 448
- Raktaja Upadamsha 448
- Sannipataja Upadamsha 449
- Asadhya Lakshana of Upadamsha 449

**55. Syphilis and Gonorrhoea** 451
- Introduction 451
- Syphilis 451
- Stages of syphilis 451

**56. Krimiroga** 455
- Gonorrhoea 453
- Diagnosis 453
- Nirukti 456
- Definition of Krimi 456
- Samanya Nidana of Krimi 456
- Krimi as a cause of contagious disease 457
- Vishesha Nidana of Krimi 457
- Samprapti of Krimi 458
- Samprapti Ghataka of Krimi 458
- Types of Krimi 458
- Samanya Lakshana of Abhyantara Krimi 458
- Bahya Krimi 459
- Kaphaja Krimi 460
- Nidana of Kaphaja Krimi 460
- Lakshana of Kaphaja Krimi 460

**Chapter Name** **Page No**

- Raktaja Krimi 460
- Nidana of Shonitaja Krimi 460
- Lakshana of Shonitaja Krimi 460
- Purishaja Krimi 460
- Nidana of Purishaja Krimi 461
- Lakshana of Purishaja Krimi 461
- Sadhyasadhyata of Krimi 461

**57. Clinical presentation of common parasitic diseases** 463
- Introduction 463
- Host 464
- Habitat 464
- Life cycle of parasites 464
- Host parasite 464
- Classification of parasites 465
- Nematodes 465
- Clinical implications of nematode infections 466
- Cestodes 466
- Trematodes 466
- Clinical implications of trematodes 467
- Pathogenesis of parasitic diseases 467

**58. Khalitya and Palitya** 470
- Khalitya 470
- Alopecia 470
- Palitya 471
- Nidana and Samprapti of Palitya 472
- Approach to the patient of premature greying of hairs 472

**59. Shlipada** 475
- Introduction 475
- Derivation of Shlipada 476
- Nidana of Shlipada 476
- Samprapti of Shlipada 476
- Samprapti Ghataka 476
- Purvarupa of Shlipada 476
- Sadhyasadhyata 477

**60. Tuberculosis** 480
- Introduction 480
- Pathology 481
- Clinical features 482
- Diagnosis of tuberculosis 482
- Areas of extrapulmonary tuberculosis 483
- Prognosis 483

**Index** 486

***

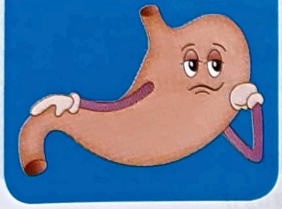
# List of Figures

1: Pratyatma Lakshana of Agnimandya 1
2: Lakshana of Ajirna 5
3: Pratyatma Lakshana of Anaha, Adhmana and Atopa 9
4: Events of Samprapti in Anaha, Adhmana and Atopa 10
5 : Pratyatma Lakshana of Chardi 14
6: Pratyatma Lakshana of Amlapitta 20
7: Pratyatma Lakshana of Shula 25
8: Bristol stool chart for consistency of faecal matter 33
9: Pratyatma Lakshana and Samprapti of Pravahika 41
10: Pratyatma Lakshana of Grahani 45
11: Lakshana of Visuchika 54
12: Pratyatma Lakshana of Alasaka 56
13: Ulcerative dyspepsia 60
14 : Non ulcer dyspepsia 61
15 : Clinical features of irritable bowel syndrome 62
16 : Normal large intestine and intestine of Crohn's disease 64
17 : Normal colon and colon of ulcerative colitis 65
18 : Pratyatma Lakshana of Mutrakrichra 69
19 : Pratyatma Lakshana of Mutraghata 74
20 : Urinary Tract Infection 82
21 : Image of normal prostate and begign prostate enlargement 83
22: Clinical features of nephrotic syndrome 84
24 : Causes and features of acute kidney injury 85
25 : Clinical features of chronic kidney disease (CKD) 86
26 : Image of healthy individual and patient of Hikka 89
27: Pratyatma Lakshana of Shvasa 97
28: Samprapti of Kasa (mechanism of cough) 108
29: Lakshana of Rajayakshma 118
30: Lakshana of Shosha 123
31: Mechanism of pneumonia 130
32: Chest X ray of patient of pneumonia 130
33: Mechanism of COPD 131
34: Chest X ray of patient of COPD 132
35: Mechanism of pleural effusion 132
36: Chest X ray of patient of pleural effusion of left side 133
37: Mechanism of bronchiectasis 133
38: Chest X ray of patient of bronchiectasis 134
39: Shell and core temperature 137
40: Pratyatma Lakshana of Masurika 163
41: Clinical features of measles 165
43: Infrared clinical thermometer: 167
44: Temperature gun 168
45: Mechanism of temperature loss from the body 169
46: Temperature variations observed in the body 169
47: Koplik spots in measles 170
48: Clinical features of measles 171
49: Clinical features of chicken pox 171
50: Clinical features of herpes zoster 172
51: Clinical features of hand, foot and mouth disease 172
52: Clinical features of rubella 173
53: Life cycle of malaria 174
56: Image of chyluria 178
57: Algorhythm of enteric fever 180
58: Colour of Ketaki Dhuli (yellowish white) of Pandu Roga 185
59: Samprapti of Raktapitta 195
60: Image of normal and anemic patient 203
61: Image of normal and micrcytic blood 204
63: Image of normal and macrocytic hypochromic anemia 205
64: Image of sickle cell anemia 205
65: Image of leukemia 206
66: Image of normal blood and blood of thrombocytopenia 207
67: Pratyatma Lakshana of Hridroga 209
68: Mechanism of coronary artery disease 225
69: Mechanism of coronary artery disease: cross sectional view of vessel 226
70: Mechanism of myocardial infarction 226
71: Clinical features of congestive cardiac failure (CCF) 227
72: Image of patient of normal and jaundiced individuals 230
73: The colour of Bheka Varna (colour of frog of rainy season) 231
74: Pratyatma Lakshana of Udara 237
75: Clinical differentiation of normal spleen and splenomegaly 247
76: Image of hepatomegaly 249
77: Images of different varieties of intestinal obstruction 249
78: Image of normal abdomen and abdomen with ascites 254
79: Apple and pear shaped obesity 255
80: Progression of intestinal obstruction 255
81: Abdominal swelling in pregnancy 256
82: Ovarian cyst 256
83: Image of normal bladder and bladder in retention 256
84: Stages of liver Damage 259
85: Stages of liver damage 260
86: Stages of hepatitis 261
87: Yellowish discolouration of eye 262
88: Vata dominant lesion 269
89: Pitta dominant lesion 269
90: Kapha dominant lesion 270
91: Vata and Pitta dominance 270
92: Pitta and Kapha dominance 270
93: Vata and Kapha dominance 270
94: Tridosha dominance 271
95: Lakshana of Ekakushtha 271
96: Lakshana of Charmakhya 271
97: Lakshana of Kitibha 271
98: Lakshana of Vaipadika 271
99: Lakshana of Alasaka 272
100: Lakshana of Dadru 272
101: Lakshana of Charmadala 272
102: Lakshana of Pama 272
103: Lakshana of Visphota 272
104: Lakshana of Shataru 273
105: Lakshana of Vicharchika 273
106: Rukshata or dryness of the skin 274
107: Shosha or shrinkage of the skin 274
108: Sankocha or contracture of skin 274
109: Angahinata or deformities of the body 274
110: Kharatva or roughness of the skin 274
111: Shyava Varna or blackish discolouration 274
112: Aruna Varna or reddish discolouration 274
113: Rakta Varna or Raga 275
114: Puyasrava or discharge 275
115: Putisrava or pus discharge 275
116: Kotha or sloughing 275

**117**: Appearance of Krimi 275
**118**: Formation of Kotha or necrosis 282
**119**: Image of chilblain 282
**120**: Image of trench foot 282
**121**: Image of Shvitra 284
**122**: Pratyatma Lakshana of Visarpa 286
**123**: Harita Shaka 288
**124**: Lakshana of Agni Visarpa 291
**125**: Lakshana of Agni Visarpa 291
**127**: Lakshana of Granthi Visarpa 293
**128**: Atopic dermatitis 297
**129**: Exfoliative dermatitis 297
**130**: Hand and foot dermatitis 298
**131**: Stasis dermatitis 298
**132**: Seborrheic dermatitis 298
**133**: Urticaria 299
**134**: Angioedema 299
**135**: Psoriasis 299
**136**: Lichen planus 300
**137**: Pemphigus 301
**138**: Bullous pemphigoid 301
**139**: Myctic skin disease 302
**140**: Tinea versicolor 302
**141**: Tuberculoid leprosy 303
**143**: Vitiligo 303
**144**: Cellulitis 304
**145**: Pratyatma Lakshana of Galaganda 307
**146**: Lakshana of Gandamala 307
**147**: Variant form of Gandamala 308
**148**: Lymph node swelling in inguinal region 310
**149**: Lymph node swelling in the neck region 310
**150**: Lymph node swelling in the axillary region 310
**151**: Functional anatomy of thyroid gland 312
**152**: Exophthalmos or Von Graefe' sign 313
**153**: Lid lag seen in patient of hyperthyroid 313
**154**: Pizzilo's method 313
**156**: Exophthalmos 314
**157**: Chemosis 314
**158**: Tremors of hands 314
**159**: Sthaulya 317
**160**: Gradings of BMI 322
**161**: Clinical features of obesity 322
**162**: Pratyatma Lakshana of Prameha 325
**163**: Complications of diabetes mellitus 333
**164**: Pancreatitis 335
**165**: Lakshana of Ardita 347
**166**: Hemifacial spasm 348
**167**: Parkinson's disease 354
**168**: Ischemic and haemorrhagic stroke 355
**169**: Clinical features of stroke or CVA 356
**170 a & b:** Diagnosis of ischemic and haemorrhagic stroke respectively 356
**171**: Bell's palsy 357
**172**: Pathology of Motor Neuron Disease 357
**173**: Clinical features of Motor Neuron Disease 358
**174**: Transverse myelitis 359
**175**: Diagnosis of transverse myelitis 360
**176**: CT scan of organic epilepsy 360
**177**: Mechanism of sciatica 361
**178**: Brachial neuralgia 362
**179**: Erb's palsy 362
**180**: Klumpke's palsy 363
**181**: Cervical spondylosis 363
**182**: X ray of spine showing cervical spondylosis 363
**183**: MRI scan of cervical spondylosis 363
**184**: Lumbar spondylosis 364
**185**: X ray spine showing lumbar spondylosis 364
**186**: Depiction of Asthivaha Srotas 368
**187**: Normal and abnormal states of Sandhi or joint 368
**188**: Osteomyelitis 369
**189**: Osteoarthritis 372
**190**: X ray showing normal and abnormal knee joint 373
**191**: Osteoporosis 373
**192**: Frozen shoulder syndrome 374
**193**: X ray right shoulder showing signs of frozen shoulder 374
**194**: X ray foot showing calcaneal spur 374
**195**: Plantar fascitis 375
**196**: MRI showing plantar fascitis 375
**197**: Tennis elbow 375
**198**: Cozen's test 376
**199**: Mill's manoeuvre 376
**200**: X ray showing tennis elbow 376
**201**: MRI showing tennis elbow 376
**202**: Carpal tunnel syndrome 377
**203**: Fibromyalgia 378
**204**: Gower's sign in Duchenne muscular dystrophy 378
**205**: Becker dystrophy 379
**206**: Normal joint and joint of rheumatoid arthritis 382
**207**: Pratyatma Lakshana of Vatarakta 387
**208**: Duckett Jones Diagnostic criteria 397
**209**: Joints of the patient of rheumatoid arthritis 398
**210**: Other images of deformities of rheumatoid arthritis 399
**211**: Z deformity in the patient of rheumatoid arthritis: 399
**212**: The abnormalities of joints of rheumatoid arthritis 399
**213**: Clinical features of systemic lupus erythematosus (SLE) 401
**214**: Normal spine and spine of ankylosing spondylitis 402
**215**: X ray spine of ankylosing spondylitis showing bamboo spine 402
**216a**: Gout (Inflammatory Arthritis) 403
**217**: Sexual dysfunction 414
**218**: Lakshana of Vishada 432
**219**: Nidana and Lakshana of Sanyasa 435
**220**: Clinical features of depression 441
**221**: Anxiety neurosis 442
**222**: Upadrava of Phiranga 446
**223**: Lakshana of Upadamsha in males 447
**224**: Lakshana of Upadamsha in females 447
**225**: Features of syphilis 451
**226**: Chancre in penis 452
**227**: Arthritis dermatitis syndrome 453
**228**: Types of Krimi 455
**229**: Species of plasmodium 463
**230**: Entamoeba hystolytica 464
**231**: Roundworms 464
**232**: Wuchereria 465
**233**: Tapeworms 466
**234**: Liver flukes 467
**235**: Blood flukes 467
**236**: Lung flukes 467
**237**: Intestinal flukes 467
**238**: Hookworms 467
**239**: Pratyatma Lakshana of Khalitya 470
**240**: Alopecia areata 471
**241**: Alopecia totalis 471
**242**: Alopecia universalis 471
**243** : Patient of albinism 472
**244**: Pratyatma Lakshana of Shlipada 475
**245**: Kharatva of Tvak in Shlipada 476
**246**: Purvarupa of Shlipada 477
**247**: Clinical features of tuberculosis 480
**248**: Mycobacterium tuberculosis 481
**249**: Transmission of tuberculosis 482
**250**: Chest x ray of tuberculosis 483
**251**: Mantaux test 483

CHAPTER

1



# Agnimandya-
# Ajirna, Anaha, Adhmana, Atopa

**Learning Objectives**

- ⇨ To recall the physiology of Agni
- ⇨ To identify the role of Agni in the manifestation of Agnimandya, Ajirna, Anaha, Adhmana, Atopa
- ⇨ To understand the etiological factors of Agnimandya, Ajirna, Anaha, Adhmana and Atopa mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka of Agnimandya etc diseases based on the progression of the disease
- ⇨ To learn the concepts of above mentioned diseases with the lens of physiology, pathology, physics, chemistry and biology
- ⇨ The outcome of the whole chapter is to identify the morbidities in accordance with principles of Ayurveda pathology
- ⇨ This is learnt under the domain of CK (cognitive/ knowledge); topic is MK (Must know); learnt under lecture with PPT method; assessment is done on quiz for Anaha; descriptions of Adhmana and Atopa, assessment is done in internal assessment
- ⇨ The concepts Anaha, types of Anaha should be known to the students where as for the descriptions of Adhmana and Atopa, the students should be in a position to describe know how part.

## Introduction

In Ayurveda, it is being postulated that most of the *Nija* variety of diseases which manifest in the body are due to abnormality of Agni (digestive fire). In most of the occasions, this abnormality occurs as a result of abnormal diet pattern following by human beings. That is the reason, *Atanka Prakasha* (second paper of *Roga Nidana* and *Vikriti Vigyan*) is started with the topic of *Agnimandya, Ajirna, Anaha, Adhmana* and *Atopa*. Before learning the concepts of these pathological entities, it is better to know about the physiological and pathophysiological aspects of the diseases.

*Agnimandya* **(see Figure 1)** is a spectrum of dysfunctions where we can observe the poor functioning of Agni in an individual. In most of the situations, *Agnimandya* and *Mandagni* are used synonymously. Actually, both are distinct clinical conditions. *Mandagni* is the condition which is seen in the people who have *Kapha Prakriti* which is seen in the people who have *Kapha Prakriti* and indulge in unwholesome food and drinks. Whereas *Agnimandya* is the clinical condition which can be seen in any of the vitiation of *Dosha* either *Vata* or *Pitta* or *Kapha* which depends on the exposure to etiological factor. One thing which is common both *Agnimandya* and *Mandagni*, there will be poor functioning of *Agni*. The main *Srotas* afflicted will be *Annavaha Srotas*, but in due course of time, we can observe the involvement of either *Purishavaha* or *Pranavaha Srotas* depending upon the nature of movement of vitiated *Dosha* in the *Mahasrotas*. The involvement of these two *Srotas* can be said as whole *Mahasrotas* contains part of *Pranavaha Srotas, Annavaha* and *Purishavaha Srotas*.

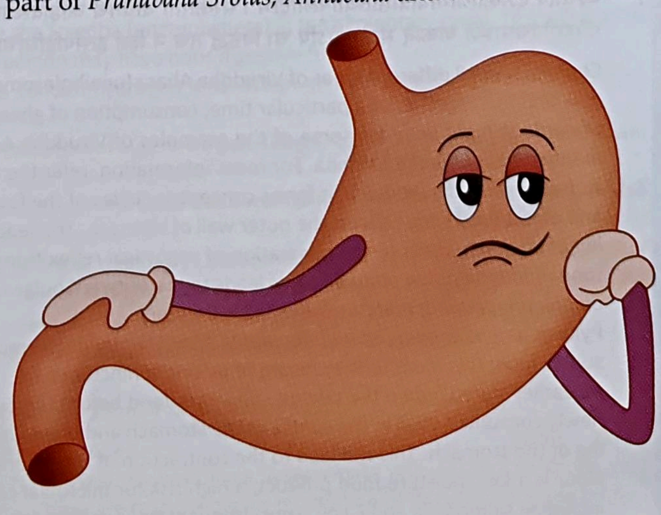


**Figure 1:** Pratyatma Lakshana of Agnimandya

- Frequently sleeping[16] in day time after food intake.
- Increased frequency of bathing[17].
- Increasingly spending time in tub bath[18].
- Frequently drinking water[19] in between the consumption of morsel during food intake.
- Frequent consumption of stale or rotten food.

Above etiological factors will lead to the vitiation of *Vata* etc *Dosha* and finally resulting in poor functioning of *Agni*.

## Samprapti Ghataka

- **Dosha:** *Kapha* or *Pitta* or *Vata*
- **Dushya:** *Rasa*
- **Srotas:** *Annavaha, Pranavaha, Rasavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama:** *Jatharagnimandyajanya*
- **Udbhava Sthana:** *Amashaya*
- **Sanchara Sthana:** *Koshtha*
- **Vyakta Sthana :** *Koshtha*
- **Vyadhi Svhabhava :** *Ashukari*
- **Rogamarga :** *Abhyantara*
- **Sadhyasadhyata :** *Sadhya* to *Krichrasadhya*

As stated in the introduction, *Mandagni* is the condition which is usually seen in the persons who are having *Kapha Prakriti*. It doesn't mean that the state of *Mandagni* is present always in *Kapha Prakriti* individuals. It depends on the nature of food intake or quality of food intake etc. However, it is certain that when *Kapha Prakriti* individuals consume *Kapha* vitiating factors, *Mandagni* is common phenomenon, where the person is having digestion very slowly, even the substances light to digest take lot of time to get digested.

*Agnimandya* is the progressive pathological mechanism where the person will have heaviness of the abdomen, heaviness of the head, cough, breathlessness, excess salivation, vomiting and sluggish movements of the body.

Literally speaking, actual mechanism of the *Agnimandya* due to *Vata* or *Kapha Dosha* vitiation is not explained clearly. In the context of *Vataja Jvara* and *Kaphaja Jvara*, there is a term पिधायाग्निमुपहत्य is explained which is an indication of poor digestive function in case of *Vata* or *Kapha Dosha* vitiation. In *Pitta* dominance clinical condition, *Agnimandya* occurs due to the increase of *Drava* quality of *Pitta*. Normally, *Drava* quality will be reduced during digestion and this phenomenon is responsible for the increase of *Tikshna* quality which increases appetite of a person. This *Tikshna* quality easily facilitates the process of digestion.

- Agnimandya and Mandagni are used synonymously most of the times. Mandagni is usually seen in Kapha Prakriti individuals whereas Agnimandya can be observed in individuals irrespective of the Prakriti of the individuals. Agnimandya can be seen in individuals depending on the exposure to the aetiological factors, which leads to the abnormal increase of either Vata or Pitta or Kapha in the body.
- Ahara Parinama Krama is explained in brief in this chapter. Pranavata will lead to the movement of food substances from the mouth to the Amashaya. In the Amashaya, ingested food stays for a certain period of time. Ushma, Kleda, Sneha will act on the ingested food. After a certain period of time, partially digested food substances will be taken to the distal parts by Samana Vata which is responsible for the separation of nutrients and metabolites. Further, Samana Vata helps in the absorption of nutrients and expulsion of metabolites (undigested food residues) further into Pakvashaya. Apana Vata will take up the function of expulsion of undigested food residues to the exterior in due course of time.

---

G K

leads to Abhishyanda (obstruction to Srotas), it becomes much heavy for digestion. That is why, when an individual has the habit of excess beaten rice consumption, that will lead to poor digestive function.

[16] While analysing this etiological factor, we have to concentrate on two different aspects: Sleeping during day time and time of sleep i.e. after consumption of food in the noon time.

- Sleeping during day time, the person will have relaxation of most of the muscles of the body. This includes the relaxation of tone of airway dilator muscles results in collapse in the upper airways during sleep. Because of this mechanism, the person will have increased mouth breathing which results in snoring.
- When an individual goes for sleep soon after the lunch, the body will have increased vascularity towards gastrointestinal compartment and there will be poor blood circulation to the nervous system and because of this reason, the person will have natural tendency of sleepiness during day time.
- During sleep, there will parasympathetic nervous system stimulation, this will lead to the enhanced alimentary secretion and there will be poor muscular activity and this will cause poor digestion of food.

[17] The nature of water used for bathing either cold or hot water will have an impact on regulation of fluid compartments inside the body. If the person uses hot water for frequent bathing, it leads to intense vasodilatation of skin blood vessels. This will lead to the increase of the rate of heat transfer to the skin upto 8 folds.

This leads to the decrease fluid of intravascular compartment, thereby there will be decreased secretion in the gastrointestinal compartment and thus the person will have abnormal digestion and assimilation.

[18] In this also, the mechanism is the same as that of frequent bathing of warm water.

[19] Frequent drinking of water in between meals is responsible for the dilution of hydrochloric acid and this will lead to the dilution of HCl and thus it will lead to poor activation of pepsinogen and thus the person will have improper digestion.

- Agnimandya and Ajirna are manifested in the individuals as abnormal cycles. Agnimandya will lead to the occurrence of Ajirna and Ajirna will lead to the manifestation of Agnimandya and the cycle continues.
- Kashyapa mentioned the aetiological factors of Agnimandya in the context of Amlapitta in Khila Sthana of Kashyapa Samhita.

# Ajirna

## Introduction

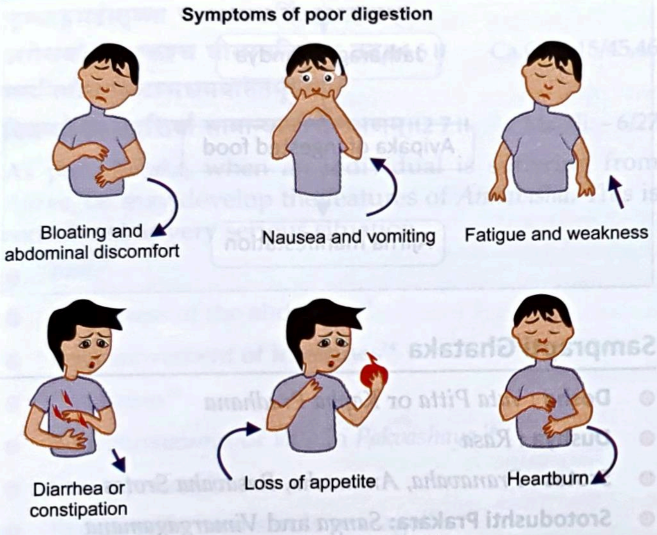


**Figure 2:** Lakshana of Ajirna

*Ajirna* is the spectrum of the diseases where digestion of ingested food doesn't occur at appropriate time. Digestion is a very essential phenomenon that occurs when macronutrients are converted to micronutrients which can be utilised for the supplementation of depleted body nutrients.

Due to the disturbance in digestive function, the person may be presented with *Ajirna*. When we speak of *Agni Vyapara*, first there will be action of *Jatharagni*, followed by the action of *Bhutagni, Dhatvagni* and *Bhutagni* respectively.

This can be categorised under *Doshabala Pravritta Vikara* of *Adhyatmika Vikara*. This is a disease of *Annavaha Srotas* with the involvement of *dysfunctioning Jatharagni* responsible for the formation of *Ama* in the *Annavaha Srotas*. As far as the type of *Srotodushti* involved, *Sanga* and *Vimargagamana* will be happening during the progression of the disease. Depending upon the movement of *Dosha*, involvement of *Dhatu* in the pathogenesis, we can observe the affliction of either *Pranavaha Srotas* or *Purishavaha Srotas* or *Rasavaha Srotas* in due course of time sooner or later.

**सर्वमजीर्णं त्रिदोषजम्।** Madhu, Ma.Ni. – 6/5,6

Though, all *Ajirna* are considered to be *Tridoshaja* in manifestation, depending upon the *Dosha* dominance in disease causation, progression and clinical manifestation, *Ajirna* from single *Dosha* vitiation is considered in progression of *Ajirna*.

**न जीर्यति सुखेनान्नं विकारान् कुरुतेऽपि च।**
**तदजीर्णमिति प्राहुस्तन्मूला विविधा रुजः॥** Gananath Sen

As per veteran *Ayurveda* scholar, *Gananath* Sen, *Ajirna* is a condition where a person cannot able to digest the ingested food and is responsible for various kinds of discomfort and various kinds of disease manifestation.

Before learning the description of *Ajirna*, we should know about the clinical features which indicate proper digestion of ingested food. The features are mentioned in *Madhava Nidana* as follow:

## Jirnahara Lakshana

**उद्गारशुद्धिरुत्साहो वेगोत्सर्गो यथोचितः।**
**लघुता क्षुत्पिपासा च जीर्णाहारस्य लक्षणम्॥24॥** Ma.Ni. – 6/24

- **Udgara Shuddhi**[1] – clear eructation without taste perception
- **Utsaha**[2] – able to do any kind of activities
- **Vegotsarga**[3] – proper evacuation of different Vega i.e. *Vata, Vit* and *Mutra* (flatus, faecal matter and urine respectively) at proper time

---

GK

[1] The presence of clear eructation indicates the complete passage of food substances from Amashaya to the distal parts for digestion. When the person is developing the eructation similar to food substance consumed indicates improper mixing of digestive juices in the stomach. The presence of sour eructation indicates the mixing of hydrochloric acid in the stomach and reversal of movement of food substances in the upper alimentary canal.

[2] The presence of Utsaha in the person indicates transformation of macromolecules into micro molecules and complete assimilation of nutrients from the alimentary canal. Otherwise, the ingested food which contain macromolecules, they may enter into lower alimentary canal as macromolecules or intermediate molecules. These molecules will move slowly in the lower alimentary canal due to heavier weight and thus the person may have lassitude.

[3] It is being said in western medicine regarding transit time in different parts of alimentary canal. Transit time in the oesophagus is in seconds, whereas transit time in the stomach is around 2 hours, in the small intestine, the transit time is 5 to 6 hours and in the large intestine, it is 1 to 2 days. In this context, Vegotsarga refers to the movement of the consumed food substances in different parts of alimentary canal at appropriate time.

- **Laghuta**[4] – lightness of the alimentary canal
- **Kshut Pipasa**[5] – proper appearance of hunger and thirst

## Ajirna Nidana

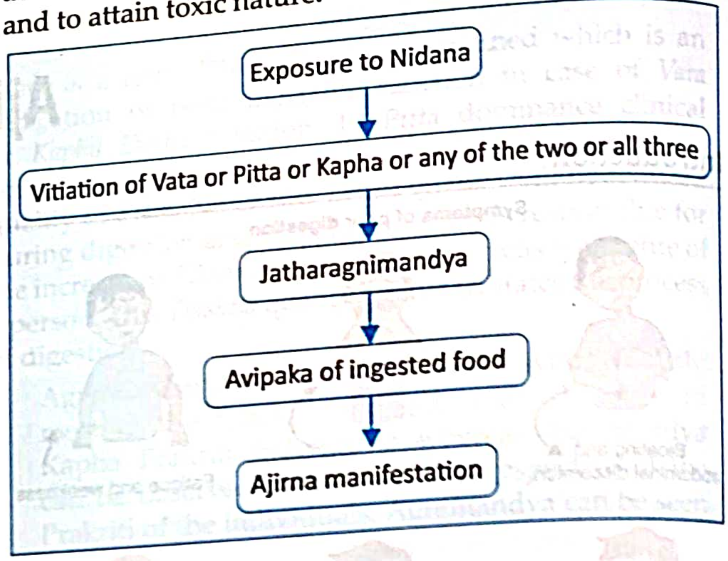
अत्यम्बुपानाद्विषमाशनाच्च संधारणात्स्वप्नविपर्ययाच्च।
कालेऽपि सात्म्यं लघु चापि भुक्तमन्नं न पाकं भजते नरस्य॥7॥
ईर्ष्याभयक्रोधपरिलुतेन लुब्धेन रुग्दैन्यनिपीडितेन।
प्रद्वेषयुक्तेन च सेव्यमानमन्नं न सम्यक्परिपाकमेति॥8॥
मात्राऽप्यभ्यवहृतं पथ्यं चान्नं न जीर्यति।
चिन्ताशोकभयक्रोधदुःखशय्याप्रजागरैः॥9॥ Ma.Ni. – 6/7-9
अनात्मवन्तः पशुवद्भुञ्जते येऽप्रमाणतः।
रोगानीकस्य ते मूलमजीर्णं प्राप्नुवन्ति हि॥14॥ Ma.Ni. – 6/14

- Excess drinking of water[6]
- Consumption of food at improper time and quantity[7]
- Suppression of natural urges[8]
- Abnormal sleep patterns[9]
- When the person is having psychological distress such as jealousy, fear, anger and in these situations, even the person is taking the food at appropriate quantity and time
- If the person is having aversion to take food substances[10]
- Consuming the food without considering the quality or quantity of food like lower animals such as cow[11]

## Samprapti of Ajirna

दुष्यत्यग्निः, स दुष्टोऽन्नं न तत् पचति लध्वपि।
अपच्यमानं शुक्तत्वं यात्यन्नं विषेरूपताम्॥44॥ Ca.Ci. – 15/44

Patients who have developed the dysfunction of *Agni* are not in a position to digest the ingested food substances which are light to digest. This will lead to undigested and accumulated food in the *Amashaya* to become sour taste and to attain toxic nature.



## Samprapti Ghataka

- **Dosha :** *Vata Pitta* or *Kapha Pradhana*
- **Dushya :** *Rasa*
- **Srotas :** *Pranavaha, Annavaha, Rasavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Koshtha*
- **Vyakta Sthana :** *Koshtha*

---

GK

[4] When the person feels lightness of the alimentary canal, then it indicates proper digestion occurring in the alimentary canal. When the person is having indigestion, that will lead to the heaviness of the alimentary canal as well as body parts.

[5] Appearance of appetite and thirst at appropriate time indicates the metabolic activities happening at appropriate pace and time.

[6] When an individual consumes excess amount of water at a particular time is responsible for the dilution of hydrochloric acid and gastric juices. When there is dilution of gastric juices, that will lead to the improper digestion of ingested food, protein rich food substances in particular. Because of the dilution of hydrochloric acid, activation of pepsinogen into pepsin is hampered which is necessary for the digestion of proteins; protection of gastric wall from microbes which enter via ingested may be hampered.

[7] When an individual follows this kind of eating pattern, there will be irregularities in amounts of secretion of gastric juices, thus the person may have irregular digestion and assimilation of food.

[8] Let us take the example of Purisha (faecal matter) and Adhovata (flatus) Vegadharana. When an individual suppresses these urges, that will abnormally increase the Apanavata in the body, which leads to the reverse movement of Vata in the body. This event will lead to the abnormal increase of Samanavata in the body. Samanavata is considered to be one of the six factors responsible for the proper digestion of food (Ahara Parinamakara Bhava). When Samanavata is disturbed, this may have an impact on Ushma, Kleda, Sneha, Kala and Samayoga of Ahara Parinamakara Bhava, leading to dysfunction of Agni. If the person still does suppression of urges, that may lead to the abnormal functioning of Pranavata (reversal of Pranavata).

[9] Abnormal sleeping patterns include avoiding the sleep at night time and sleeping during day time. When an individual sleeps during day time will lead to the stimulation of parasympathetic nervous system. This activation will lead to the excess secretion of juices in the alimentary canal. This may dilute the whole digestive process. When an individual awakens at night time, this will lead to the activation of sympathetic nervous system. This activation will lead to hampered secretion of juices in the alimentary canal which further disturbs the digestion process.

[10] Emotional stimuli frequently increase the interdigestive gastric secretion (highly peptic and acidic) to 50 ml or more per hour. Thus, extreme stressful situations are the frequent causative factors of gastric mucosal damage leading to irregular digestion.

[11] This kind of food consuming pattern is responsible for the stretching of the stomach wall which will lead to improper mixing of gastric juices with ingested food. Thus, the person may have indigestion of ingested food.

- **Rogamarga :** *Abhyantara* and *Bahya*
- **Sadhyasadhyata :** *Sukhasadhya* to *Krichrasadhya*
- **Vyadhyavastha :** *Ashukari* or *Chirakari; Saama* or *Nirama* depending upon the duration of the illness and nature of *Dushya* involvement in pathogenesis

## Samanya Lakshana of Ajirna

तस्य लिङ्गमजीर्णस्य विष्टम्भः सदनं तथा।
शिरसो रुक् च मूर्च्छा च भ्रमः पृष्टकटिग्रहः॥45।
जृम्भाङ्गमर्दस्तृष्णा च ज्वरश्छर्दिः प्रवाहणम्।
अरोचको विषाकश्च घोरमन्नविषं च तत्॥46॥ Ca.Ci. – 15/45,46

ग्लानिगौरवविष्टम्भभ्रममारुतमूढताः।
विबन्धो वा प्रवृत्तिर्वा सामान्याजीर्णलक्षणम्॥27॥ Ma.Ni. – 6/27

As per *Charaka,* when an individual is suffering from *Ajirna,* he may develop the features of *Annavisha*. This is considered as very serious situation.

- Fatigue[12]
- Heaviness of the abdomen[13]
- Poor movement of intestines[14]
- Giddiness[15]
- Poor movement of *Vata* in *Pakvashaya* [16]
- Constipation [17]
- Excess unformed stools passage[18]
- Headache[19]
- Altered state of consciousness[20]
- Stiffness of the back
- Stiffness of the waist region[21]
- Excessive yawning
- Thirst[22]
- Raised body temperature[23]
- Vomiting[24]
- Excessive straining for defaecation[25]
- Tastelessness
- Impaired digestion

## Sankhya Samprapti of Ajirna

आमं विदग्धं विष्टब्धं कफपित्तानिलैस्त्रिभिः।
अजीर्णं केचिदिच्छन्ति चतुर्थ रसशेषतः॥5॥
अजीर्णं पञ्चमं केचिन्निर्दोषं दिनपाकि च।
वदन्ति षष्ठं चाजीर्णं प्राकृतं प्रतिवासरम्॥6॥ Ma.Ni. – 6/5,6

### Types of Ajirna:

**4 types as per Sushruta:** *Amajirna, Vidagdhajirna, Vishtabdhajirna, Rasasheshajirna*

**6 types as per Madhavakara**

1. *Amajirna*
2. *Vidagdhajirna*
3. *Vishtabdhajirna*
4. *Rasasheshajirna*
5. *Dinapaki Ajirna*
6. *Prakrita Ajirna*

## Amajirna Lakshana

तत्रामे गुरुतोत्क्लेदः शोथो गण्डाक्षिकूटगः।

---

G K

[12] This is attributable to the poor digestion and assimilation of nutrients from the alimentary canal. Glucose, sodium, potassium and calcium ions are required for most of the activities in the body. If there is deficiency in absorption of these substances, the person may have fatigue with slight amount of physical activities.

[13] When an individual is having poor digestive fire and he has consumed food substances, most of the food substances are macromolecular and non-absorbable form. Because of the poor digestive fire, these macromolecular substances which are heavy in nature, move slowly in the alimentary canal. This will lead to the clinical presentation of heaviness of the abdomen.

[14] When macromolecular substances enter the small intestine and large intestine, will lead to the poor intestinal motility owing to their macromolecular structure.

[15] This can be attributable to poor cerebral blood flow or hypoglycemia or electrolyte imbalances.

[16] This can be attributable to the presence of macromolecules in the large intestine. Due to the heavier nature, these macromolecules move slowly in the large intestine.

[17] When there is slower movement of food residue in the large intestine, that will lead to the excess absorption of the water from the large intestine. It is well known that faecal matter in the rectum will have 75% of the water and 25% undigested food residue. When there is poor motility, this will lead to absorption of water portion from large intestine as well as rectum.

[18] When there is excess amount of water enters the large intestine, more amount of water is going to get eliminated from the anus. Thus, the person may have unformed stools passage. This symptom will be absent in the people presenting with constipation.

[19] When there is excess amount of water enters the large intestine, more amount of water is going to get eliminated from the anus. Thus, the person may have unformed stools passage. This symptom will be absent in the people presenting with constipation.

[20] This can be attributable to either electrolyte imbalances or due to hypoglycemia or hypovolemia.

[21] This can be attributable to the referred pain that develops as a result of similar innervation of back and abdominal viscera.

[22] This is attributable to poor water absorption from the alimentary canal leading to hypovolemia.

[23] This can be attributable to the increased metabolic activity which occurs as a result of poor digestive activitiy in the alimentary canal.

[24] This is attributable to prolonged closure of pyloric antrum. This is one of the commonest occurrence in case of Adhyashana or Vishamashana nature of food intake.

[25] This can be attributable to the presenting complaint of constipation.

उद्गारश्च यथाभुक्तमविदग्धः प्रवर्तते॥1 0॥ Ma.Ni. – 6/10

- This is manifested due to the vitiation of *Kapha Dosha* in the body
- Heaviness of the body parts
- Nausea
- Swelling near the temporal region
- Swelling around the orbital region
- Eructation having the taste as the same regarding the dominance of food when he consumes food

## Vidagdha Ajirna Lakshana

विदग्धे भ्रमतृण्मूर्च्छाः पित्ताश्च विविधा रुजः।
उद्गारश्च सधूमाम्लः खेदो दाहश्च जायते॥1 1॥ Ma.Ni. – 6/11

- This is manifested due to the dominance of *Pitta Dosha.*
- Giddiness
- Thirst
- Altered state of consciousness
- Different kinds of discomfort
- Belching having sour taste
- Sensation of smoke coming out through mouth
- Sweating
- Burning sensation

## Vishtabha Ajirna Lakshana

विष्टब्धे शूलमाध्मानं विविधा वातवेदनाः।
मलवाताप्रवृत्तिश्च स्तम्भो मोहाङ्गपीडनम्॥1 2॥ Ma.Ni. – 6/12

- This is manifested due to the dominance of *Vata Dosha*
- Pricking type of pain in the abdomen
- Distension of the abdomen
- Various kinds of discomfort which occurs due to the vitiation of *Vata Dosha*
- No downward movement of flatus and faecal matter
- Stiffness of the body parts
- Confusion
- Body ache

## Rasashesha Ajirna

रसशेषेऽन्नविद्वेषो हृदयाशुद्धिगौरवे। Ma.Ni. – 6/13

रस शब्देन रसवानाहारोऽभिप्रेतो लक्षणया, तेन रसशब्देन रसवानाहारोऽभिधीयते, तस्य शेषोऽपरिणतिलक्षणो रसशेष इति जेज्जटः।

उद्गारशुद्धावपि भक्ताकांक्षा न जायते हृद् गुरुता च यस्य।
रसावशेषेण तु सप्रसेकं चतुर्थमेतत्प्रवदन्त्यजीर्णम्॥ सु.सू. - 46/

रसावशेषेण तु सप्रसेकं चतुर्थमेतत्प्रवदन्त्यजीर्णम्।।

उद्गारेऽपि विशुद्धतामुपगते कांक्षा न भक्तादिषु स्निग्धत्वं वदनस्य
सन्धिषु रुजा कृत्वा शिरोगौरवम्।
मन्दाजीर्णरसे तु लक्षणमिदं तत्रातिवृद्धे पुनः हृल्लासज्वरमूर्च्छनादि च
भवेत् सर्वामयक्षोभणम्॥
आमादित्रयजमन्नज, रसशेषरसाहाररसजः; Madhu, Ma.Ni. – 6/5-6

While discussing about the concept of *Rasasheshajirna*, two different understanding of *Rasashesha* is available. In one context, part of the impartially formed *Rasa* remain in *Mahasrotas* (alimentary canal) and this will either stick to the alimentary canal or move either upwards or downwards. In another context, part of impartially digested *Ahara Rasa* will enter the *Rasa*. As per *Madhukosha* commentary, *Ama*, *Vidagdha* and *Vishtabdha Ajrina* are *Annaja* (resulted from improperly digested food articles) whereas *Rasashesha Ajirna* are considered to be *Ahara Rasajanya*.

- Aversion to take the food substances
- Discomfort in the chest
- Heaviness of the head
- Heaviness of the body parts

**Dinapaki Ajirna:** The term *Dinapaki Ajirna* refers to the state of indigestion which persists in an individual for more than one day.

**Prakrita Ajirna:** The term *Prakrita Ajirna* is observed in each and every individual temporarily after the consumption of food.

## Upadrava of Ajirna

मूर्च्छा प्रलापो वमथुः प्रसेकः सदनं भ्रमः।
उपद्रवा भवन्त्येते मरणं चाप्यजीर्णतः॥1 3॥ Ma.Ni. – 6/13

- **Murcha**[26] – altered state of consciousness
- **Pralapa**[27] – irrelevant and incomprehensible speech
- **Vamathu**[28] – vomiting
- **Praseka**[29] – excessive salivation
- **Sadana**[30] – sluggish movement of body parts

---

GK

[26] This symptom is usually attributable to the consequence of poor nutrient absorption from the intestine such as hypoglycemia or hyponatremia or hypokalemia.

[27] This is usually attributable to consequence of poor nutrient absorption such as hypoglycemia or electrolyte imbalances.

[28] This is attributable to the presence of excess amount food in the stomach which may lead to the stretching of stomach wall leading to closure of pyloric antrum, reverse peristaltic movements leading to vomiting.

[29] This is attributable to the over stimulation of parasympathetic nervous system. This will lead to excess salivation owing to stimulation of salivary glands. Over stimulation of parasympathetic nervous system can even causes the excess stimulation of gastric gland to secrete the digestive juices which further dilute the ingested food leading to indigestion.

[30] This is attributable to the presence of macromolecules in the alimentary canal. This is mainly observed in the trunk region initially.

- **Bhrama**[31] – giddiness
- **Marana**[32] – death

## Consequences of Amajirna, Vishtabdhajirna and Vidagdhajirna

अजीर्णमामं विष्टब्धं विदग्धं च यदीरितम्।
विसूच्यलसकौ तस्माद्भवेच्चापि विलम्बिका॥1 5॥ Ma.Ni. – 6/15

- If an individual is not receiving any appropriate treatment or unwilling to receive the treatment, then it may lead to following consequences.
- If *Amajirna* is not treated properly, it may lead to the manifestation of *Visuchika*.
- If *Vishtabdhajirna* is not treated properly, it may lead to the manifestation of *Alasaka*.
- If *Vidagdhajirna* is not treated properly, it may lead to the manifestation of *Vilambika*[33].

## Anaha, Adhmana and Atopa

### Introduction

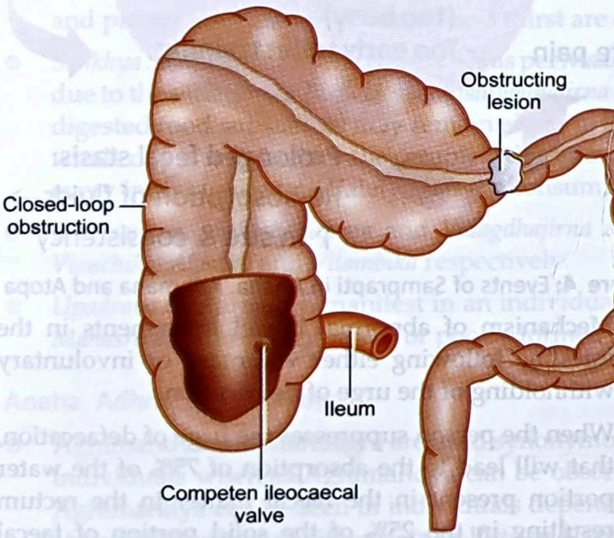


**Figure 3:** Pratyatma Lakshana of Anaha, Adhmana and Atopa

- *Anaha, Adhmana* and *Atopa* are the terms indicating spectra of the diseases where in we can observe the *Apana Vata* affliction at the beginning.
- These diseases involve *Purishavaha* and *Annavaha Srotas*. When we speak in terms of the progression of the pathogenesis, we can say *Anaha, Adhmana* and *Atopa* are sequential pathological events occur in an individual.
- These are not separate disease entities. As far as specific etiological factors, premonitory symptoms and prognosis pertaining to *Anaha, Adhmana* and *Atopa* are not mentioned in *Ayurveda* literatures.
- In the present chapter, we are going to discuss the concept of *Anaha, Adhmana* and *Atopa* based on the *Lakshana* mentioned in *Ayurveda*.

### Anaha

यस्य वातः प्रकुपितः कुक्षिमाश्रित्य तिष्ठति।
नाधो व्रजति नाप्यूर्ध्वमानाहस्तस्य जायते॥

Ca.Su. – 18/32, Shabda Kalpa Druma

आमं शकृद्वा निचितं क्रमेण भूयो विवद्धं विगुणानिलेन।
प्रवर्तमानं न यथास्वमेनं विकारमानाहमुदाहरन्ति॥1 7॥

Ma.Ni. – 27/ 17

Gradual accumulation of *Ama* or stool in the *Mahasrotas* (alimentary canal). This is followed by reverse movement of *Vata* and due to this, the normal course of the movement in the *Mahasrotas* i.e, *Pranavata, Samanavata* and *Apanavata* is getting reversed. This is known as *Anaha.*

### Types of Anaha

This is of 2 types.

1. *Amaja Anaha*
2. *Purishaja Anaha*

### Amaja Anaha

तस्मिन् भवन्त्यामसमुद्भवे तु तृष्णाप्रतिश्यायशिरोविदाहाः।
आमाशये शूलमथो गुरुत्वं हृत्स्तम्भ उद्गारविघातनं च॥1 8॥

Ma.Ni. – 27/ 18

Thirst, running nose, burning sensation in the head, pricking type of pain in *Amashaya,* heaviness of the abdomen, stiffness of the chest and absence of belching are the clinical features of *Amaja Anaha*[34].

### Purishaja Anaha

स्तम्भः कटी पृष्ठपुरीषमूत्रे शूलोऽथ मूर्च्छा शकृतश्च छर्दिः।

---

[31] This could be attributable to the hampered nutrient absorption in the alimentary canal such as hypoglycemia or hyponatremia or hypokalemia.

[32] This is attributable to hampered reabsorption of water, glucose, sodium or potassium ions. Normally, out of 6 to 7 litres of fluid either by ingestion or by secretion of digestive juices into the gastrointestinal tract, only around 75 ml of the fluid will be expelled through anus. When the person is having deficient fluid absorption, it may lead to loss of sodium also. Normally, 25 to 35 gms of sodium will be absorbed each day from the large intestine which may be decreased in case of indigestion. This may be fatal within hours, sometimes leading to death also.

[33] The descriptions of Visuchika, Alasaka and Vilambika are seen in respective chapters.

[34] Clinical features of pyloric obstruction can be observed in Amaja Anaha. In this condition, patient will have cardinal feature of vomiting at the evening time. The person may have visible peristalsis from left to right. Certain systemic symptoms such as thirst, weight loss, signs of dehydration can be observed.

शोथश्च पक्वाशयजे भवन्ति तथाऽलसोकानि च लक्षणानि॥19॥

Ma.Ni. – 27/ 18

Stiffness of waist, lower back, obstruction of *Mutra* and *Purisha*, pricking type of pain in the abdomen, altered state of consciousness, feculent vomiting, swelling of *Pakvashaya* and clinical features of *Alasaka*[35] are seen in *Purishaja* *Anaha*[36].

## Adhmana

साटोप मत्युग्ररुजमाध्मातमुदरं भृशम्॥

आध्मानमिति जानीयात् घोरं वातनिरोधजम्॥88॥ Su.Ni. – 1/88

The abdomen is excessively distended, associated with gurgling sound in the abdomen and severe pain in the abdomen. This is manifested in the individual due to the suppression of flatus[37].

## Atopa

उदरे गुडगुडशब्दः वातजन्यः श्रूयत इत्यर्थः॥ च.नि.-8/6, चक्र

आटोपः उदरापूरः॥ सु.उ. – 42/8, डल्हण

नाभेरधोमन्दसंचार वायुता॥ अ.सं.नि. – 11/47, इन्दु

आटोपमीषत्सशब्दमाध्मानम्। सु.सू. 15/15, चक्र

आटोपमाध्मानं, क्षोभमित्यन्ये॥ सु.सू. 15/15, डल्हण

आटोपः संक्षोभः॥ सु.नि. – 9/20, डल्हण

*Atopa*[38] is the clinical condition which manifested by the vitiation of *Vata Dosha* in the body. This is associated with severe abdominal pain and gurgling sound in the abdominal region. It is associated with poor movement of *Vata* in the abdominal region below the umbilicus in particular.

## Samprapti Ghataka

- **Dosha :** *Vata*
- **Dushya :** *Purisha*
- **Srotas :** *Purishavaha, Annavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagni* affliction
- **Ama :** *Jatharagnijanya*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana :** *Koshtha*
- **Vyakta Sthana :** *Kukshi*
- **Rogamarga** : *Abhyantara*
- **Vyadhyavastha :** *Ashukari* or *Chirakari*
- **Sadhyasadhyata :** *Sadhya* to *Yapya* depending upon the duration of illness, involvement of *Dushya* in the manifestation

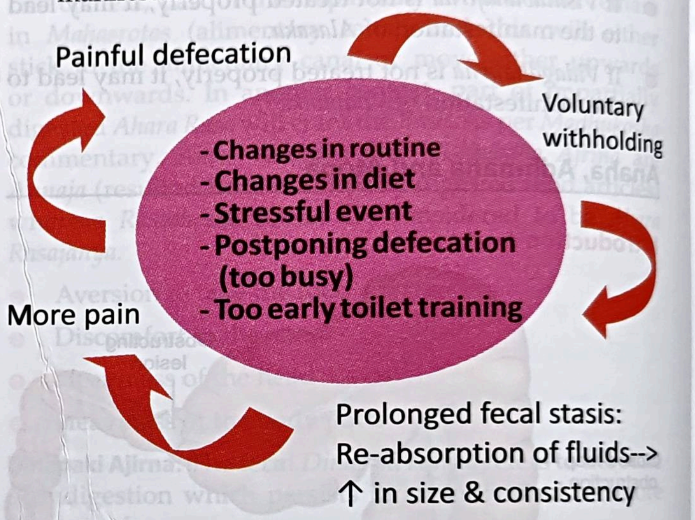


**Figure 4:** Events of Samprapti in Anaha, Adhmana and Atopa

- Mechanism of abnormal bowel movements in the intestine following either voluntary or involuntary withholding of the urge of defaecation.
- When the person suppresses the urge of defaecation, that will lead to the absorption of 75% of the water portion present in the faecal matter in the rectum resulting in the 25% of the solid portion of faecal matter which becomes even more solidified.

---

GK

[35] कुक्षिरानह्यतेऽत्यर्थ प्रताम्येत्परिकूजति। निरुद्धो मारुतश्चैव कुक्षावुपरि धावति॥19॥
वातवर्चोनिरोधश्च यस्यात्यर्थं भवेदपि। तस्यालसकमाचष्टे तृष्णोद्गारौ च यस्य॥20॥ Ma.Ni. 6/19,20
Distension of the abdomen, darkness in front of the eyes, cooing sounds made by the patient, constipation, reverse movement of Vata Dosha or reverse peristaltic movement, non passage of flatus and feces, thirst and lack of belching are the Lakshana of Alasaka.

[36] Clinical features of large intestinal obstruction will have the features of Purishaja Anaha. In this condition, the patient will have fullness of the flanks, pain abdomen and faeculent vomiting as a late clinical feature.

[37] When the suppression of urge of passing flatus is done by an individual, this will be responsible for the absorption of 60-90% of water in the faecal matter. This leads to the formation of scybalous stool mass. This is responsible for increased frequency of loud and harsh peristaltic sounds. This will be associated with severe abdominal pain as this will be leading to the partial large intestinal obstruction.
Thus Atopa will follow Adhmana.

[38] Normal peristaltic sounds consists of clicks and gurgles, occurring at a frequency of 5 to 34 per minute. When the person is presented with chronic large intestinal obstruction will have long prolonged gurgles of hyperperistalsis. These types of sounds of hyperperistalsis is termed as borborygmi.

- This in turn leads to the another urge of defaecation to occur after several hours of bowel movements resulting in the increased peristaltic movements in the large intestine to facilitate the expulsion of faecal matter.
- The subsequent suppression of urge of defaecation will lead to stretching of the rectum and later that will lead to the distension of the sigmoid colon.
- When an individual suppresses the urge of defaecation, that will lead to the abnormal increase of *Apanavata* in the *Mahasrotas*, that will lead to the absorption of *Dravata* of *Purisha* leading to hardness of *Purisha* and later there will be reverse movement of *Apanavata* (increase of *Ruksha* quality in the *Pakvashaya*), which is termed as *Udavarta*.
- Thus, initially, there will be appearance of *Anaha*, which will be followed by *Adhmana* and later, there will be *Atopa* and afterwards, these may interchange depending upon the nature of pathological events taking place in the patient's body.

## Key points of the chapter

### Agnimandya- Ajirna

Gananath Sen

**न जीर्यति सुखेनान्नं विकारान् कुरुतेऽपि च। तदजीर्णमिति प्राहुस्तन्मूला विविधा रुजः॥**

- As per veteran *Ayurveda* scholar, *Gananath* Sen, *Ajirna* is a condition where a person cannot able to digest the ingested food and is responsible for various kinds of discomfort and various kinds of disease manifestation.

### Jirnahara Lakshana

Ma.Ni. – 6/24

**उद्गारशुद्धिरुत्साहो वेगोत्सर्गी यथोचितः। लघुता क्षुत्पिपासा च जीर्णाहारस्य लक्षणम्॥24॥**

- Clear eructation without taste perception; able to do any kind of activities; proper evacuation of different Vega i.e. Vata, Vit and Mutra (flatus, faecal matter and urine respectively) at proper time; lightness of the alimentary canal and proper appearance of hunger and thirst are observed in an individual who has proper digestion of food.
- *Sankhya Samprapti* of *Ajirna* is six types as per *Madhava Nidana – Amajirna* due to vitiation of *Kapha Dosha, Vidagdhajirna* due to the vitiation of *Pitta Dosha, Vishtabdhajirna* due to the vitiation of *Vata Dosha, Rasasheshajirna* where in partially digested food substances may remain either in the alimentary canal or in the *Rasa Dhatu, Dinapaki Ajirna* where in whole day is required for the complete digestion of ingested food and *Prakrita Ajirna* which is observed in each and every individual immediately after the consumption of food for a certain period of time.
- If *Amajirna, Vishtabdhajirna* and *Vidagdhajirna* are not treated properly, they may lead to the manifestation of *Visuchika, Alasaka* and *Vilambika* respectively.
- *Upadrava* of *Ajirna* can manifest in an individual due to poor absorption or non-absorption of *Rasa* formed in the *Mahasrotas* (alimentary canal) or poorly formed *Ahara Rasa* getting into the *Rasa Dhatu* for circulation.

### Anaha, Adhmana and Atopa

- Agnimandya and Mandagni are used synonymously most of the times. Mandagni is usually seen in Kapha Prakriti individuals whereas Agnimandya can be observed in individuals irrespective of the Prakriti of the individuals. Agnimandya can be seen in individuals depending on the exposure to the aetiological factors, which leads to the abnormal increase of either Vata or Pitta or Kapha in the body.
- Ahara Parinama Krama is explained in brief in this chapter. Pranavata will lead to the movement of food substances from the mouth to the Amashaya. In the Amashaya, ingested food stays for a certain period of time. Ushma, Kleda, Sneha will act on the ingested food. After a certain period of time, partially digested food substances will be taken to the distal parts by Samana Vata which is responsible for the separation of nutrients and metabolites. Further, Samana Vata helps in the absorption of nutrients and expulsion of metabolites (undigested food residues) further into Pakvashaya. Apana Vata will take up the function of expulsion of undigested food residues to the exterior in due course of time.
- Agnimandya and Ajirna are manifested in the individuals as abnormal cycles. Agnimandya will lead to the occurrence of Ajirna and Ajirna will lead to the manifestation of Agnimandya and the cycle continues.
- Kashyapa mentioned the aetiological factors of Agnimandya in the context of Amlapitta in Khila Sthana of Kashyapa Samhita.

Gananath Sen

**न जीर्यति सुखेनान्नं विकारान् कुरुतेऽपि च। तदजीर्णमिति प्राहुस्तन्मूला विविधा रुजः॥**

- As per veteran Ayurveda scholar, Gananath Sen, Ajirna is a condition where a person cannot able to digest the ingested food and is responsible for various kinds of discomfort and various kinds of disease manifestation.

## Jirnahara Lakshana

उद्गारशुद्धिरुत्साहो वेगोत्सर्गो यथोचितः। लघुता क्षुत्पिपासा च जीर्णाहारस्य लक्षणम्॥24॥ Ma.Ni. – 6/24

- Clear eructation without taste perception; able to do any kind of activities; proper evacuation of different Vega i.e. Vata, Vit and Mutra (flatus, faecal matter and urine respectively) at proper time; lightness of the alimentary canal and proper appearance of hunger and thirst are observed in an individual who has proper digestion of food.
- Sankhya Samprapti of Ajirna is six types as per Madhava Nidana – Amajirna due to vitiation of Kapha Dosha, Vidagdhajirna due to the vitiation of Pitta Dosha, Vishtabdhajirna due to the vitiation of Vata Dosha, Rasasheshajirna where in partially digested food substances may remain either in the alimentary canal or in the Rasa Dhatu, Dinapaki Ajirna where in whole day is required for the complete digestion of ingested food and Prakrita Ajirna which is observed in each and every individual immediately after the consumption of food for a certain period of time.
- If Amajirna, Vishtabdhajirna and Vidagdhajirna are not treated properly, they may lead to the manifestation of Visuchika, Alasaka and Vilambika respectively.
- Upadrava of Ajirna can manifest in an individual due to poor absorption or non-absorption of Rasa formed in the Mahasrotas (alimentary canal) or poorly formed Ahara Rasa getting into the Rasa Dhatu for circulation.

## Self-Assessment: Questions for Review

### Long answer questions

- Define Ajirna. Explain the Nidana, Bheda, Samanya Lakshana, Upadrava of Ajirna
- Explain the Samprapti of Agnimandya and describe how it will lead to the manifestation of Ajirna

### Short answer questions

- Explain the differences between Anaha, Adhmana and Atopa
- Explain Amajirna
- Explain Jirnahara Lakshana and Samanya Ajirna Lakshana
- Explain the differences between Agnimandya and Mandagni
- Explain the Sankhya Samprapti of Ajirna
- Explain the types of Anaha

### MCQs

**1. Agnimandya is seen in**

a. Vata Prakriti individuals;

b. Pitta Prakriti individuals;

c. Kapha Prakriti individuals;

d. Any of the above e. All of the above

*Answer*: (d)

**2. Mandagni is seen in**

a. Vata Prakriti individuals;

b. Pitta Prakriti individuals;

c. Kapha Prakriti individuals;

d. None of the above

*Answer*: (c)

**3. The excess consumption of Kulattha (horse gram) will lead to the abnormal increase of**

a. Pitta; b. Vata;

c. Kapha; d. Vata Pitta and Kapha

*Answer*: (a)

**4. Alcoholic beverages will lead to the vitiation of**

a. Vata; b. Pitta;

c. Kapha; d. All of the above

*Answer*: (b)

**5. How many types of Viruddha are mentioned by Charaka?**

a. 12; b. 15;

c. 18; d. 24

*Answer*: (c)

**6. Vishtabdhajirna is manifested due to the vitiation of ____________ Dosha.**

a. Vata; b. Pitta;

c. Kapha; d. All of the above

*Answer*: (a)

**7. Sankhya Samprapti of Ajirna as per Madhavakara is**

a. 4; b. 5;

c. 6; d. 3

*Answer*: (c)

**8. The type of Ajirna which requires whole day to have digestion of ingested food is termed as**

a. Amajirna; b. Rasasheshajirna;

c. Prakrita Ajirna; d. Dinapaki Ajirna

*Answer*: (d)

**9. Visuchika is manifested in an individual due to the consequence of**

a. Vishtabhajirna; b. Amajirna;

c. Rasasheshajirna; d. Vidagdhajirna

*Answer*: (b)

**10. As per Madhukosha commentary, Ajirna is considered to be**

a. Kaphajanya; b. Tridoshajanya;

c. Vatajanya;
d. Pittajanya

*Answer*: (b)

**11. The Vata vitiated in Adhmana is**

a. Pranavata;
b. Udanavata;
c. Vyanavata;
d. Apanavata

*Answer*: (d)

**12. Types of Anaha are**

a. 2;
b. 3;
c. 4;
d. 7

*Answer*: (a)

**13. Amaja and Purishaja are the types of**

a. Anaha;
b. Adhmana;
c. Atopa;
d. Pratyadhmana

*Answer*: (a)

**14. Gudagudayana Shabda is the characteristic feature of**

a. Anaha;
b. Adhmana;
c. Atopa;
d. Pratyadhmana

*Answer*: (c)

**15. Dosha involved in Adhmana is**

a. Vata;
b. Pitta;
c. Kapha;
d. Sannipata

*Answer*: (a)

### Chapter resources

- Kashyapa Samhita Khila Sthana – 16th chapter, Amlapitta Chikitsa Adhyaya
- Charaka Samhita, Sutra Sthana – 26th chapter, Atreya Bhadrakapyiya Adhyaya
- Charaka Samhita, Vimana Sthana – 1st chapter, Rasa Vimana Adhyaya
- Charaka Samhita, Chikitsa Sthana – 15th chapter, Grahani Dosha Chikitsa Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Madhava Nidana – 6th chapter: Agnimandya Ajirna Visuchika Alasaka Vilambika Nidana
- Madhukosha commentary, Madhava Nidana, - 6th chapter: Agnimandya Ajirna Visuchika Alasaka Vilambika Nidana
- Sushruta Samhita Sutrasthana – 46th chapter: Annapana Vidhi Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- www.karger.com related to excessive yawning and disturbances in digestion
- Madhava Nidana – 27th chapter – Udavarta Anaha Nidana Adhyaya
- Sushruta Samhita, Nidana Sthana – 1st chapter – Vatavyadhi Nidana Adhyaya
- Charaka Samhita, Nidana Sthana – 8th chapter – Apasmara Nidana Adhyaya
- Sushruta Samhita, Uttara Tantra – 42nd chapter – Gulma Pratishedha Adhyaya
- Sushruta Samhita, Sutra Sthana – 15th chapter – Dosha Dhatu Mala Kshaya Vriddhi Vijnaniya Adhyaya
- Sushruta Samhita Nidana Sthana – 9th chapter – Vidradhi Nidana Adhyaya
- Ashtanga Sangraha Nidana Sthana – 11th chapter – Vidradhi Vriddhi Gulma Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www. intechopen. com

***

CHAPTER

2

# Chardi

## Learning Objectives

- To learn the concept of Chardi
- To learn the Nidana Panchaka of Chardi mentioned in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To learn the concepts of above mentioned diseases with the lens of physiology, pathology, physics, chemistry and biology

## Introduction

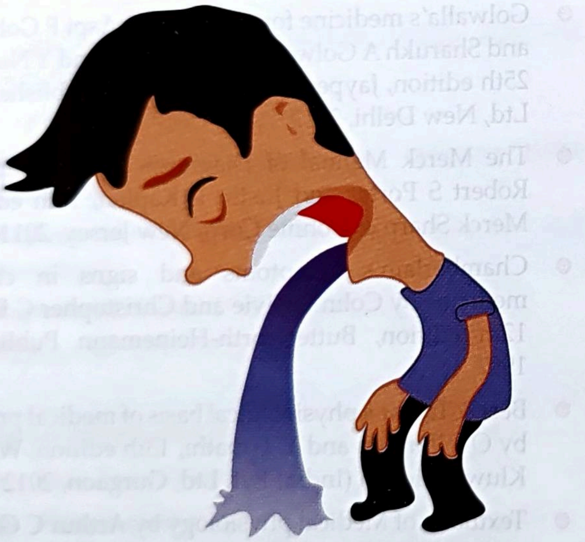


**Figure 5 :** Pratyatma Lakshana of Chardi

*Chardi* is the spectrum of the diseases where contents of the *Amashaya* will be expelled through mouth resulting emptiness of *Amashaya* producing various discomforts in the abdomen, chest, face and mouth. When we speak from western point of view, *Chardi* is vomiting. Vomiting is a reflex mechanism where contents of stomach will be expelled through mouth. This is a defense mechanism. In a strict sense, vomiting refers to expulsion of contents of stomach and distal to stomach. Elimination of contents of pharynx and oesophagus is termed as regurgitation, which is quite different from vomiting. Abnormal *Pranavata* moving in the reverse direction is responsible for *Chardi*.

## Definition of Chardi

छादयन्नाननं वेगैरर्दयन्नङ्गभञ्जनैः।
निरुच्यते छर्दिरिति दोषो वक्त्रं प्रधावितः॥4॥ Ma.Ni. – Chardi/4

- Vitiated *Dosha* is responsible for *Chardi* is *Vata Dosha.*
- This will lead to filling up of oral cavity and it occurs in episodes.
- This is responsible for various discomfort and various movements of the body such as holding the chest or forehead by one hand and another hand to the mouth etc.

## Nidana of Chardi

अतिद्रवैरतिस्निग्धैरहृद्यैर्लवणैरति।
अकाले चातिमात्रैश्च तथाऽसात्म्यैश्च भोजनैः॥2॥
श्रमाद्भयात्तथोद्वेगादजीर्णात् क्रिमिदोषतः।
नार्याश्चापन्नसत्त्वायास्तथाऽतिद्रुतमश्नतः॥3॥
बीभत्सैर्हेतुभिश्चान्यैर्द्रुतमुत्क्लेशितो बलात्। Ma.Ni. – Chardi/2-4

- Excess consumption of liquid substances[1]
- Excess consumption of *Snigdha* (unctuous) substances
- Excess consumption of substances not liked by oneself

---

GK [1] Normal capacity of the stomach is 1.5 to 2 litres. When an individual consumes more amount of water resulting in closure of pyloric sphincter. This is responsible for the overdistended stomach as a sequel to pyloric antrum closure due to increased fluid consumption. This will lead to the initiation of antiperistalsis movement.

- Excess consumption of salty substances[2]
- Excess consumption of more amount of food at improper time[3]
- Consumption of incompatible food substances[4]
- Excess physical exertion
- Fear
- Anxiety[5]
- Indigestion
- Worm infestation[6]
- Pregnancy[7]
- Excess consumption of food at a time[8]
- Visualizing the fearful views or situations[9]

## Sampraptí Ghataka

- **Dosha :** *Vata* along with *Kapha*
- **Dushya:** *Rasa*
- **Srotas :** *Pranavaha, Annavaha* and *Rasavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira* (as *Rasa* is involved)
- **Vyakta Sthana :** *Vaktra*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhyavastha :** *Ashukari*
- **Sadhyasadhyata :** *Sadhya* to *Asadhya* depending upon the clinical features, duration and severity of the illness

## Purvarupa of Chardi

तासां हृदुत्क्लेशकफप्रसे कौ द्वेषोऽशने चैव हि पूर्वरूपम्॥6॥
Ca.Ci. – 20/5

हल्लासोद्गाररोधौ च प्रसेको लवणस्तनुः।
द्वेषोऽन्नपाने च भृशं वमीनां पूर्वलक्षणम्॥5॥ Ma.Ni. – Chardi/5

- Nauseating sensation[10]
- No eructation[11]
- Salty and thin secretions[12] in the mouth
- Aversion to take food and drinks[13]

## Bheda of Chardi

### 5 types as per Charaka

1. *Vataja Chardi*
2. *Pittaja Chardi*

---

**GK**

[2] When an individual is consuming excess amount of Snigdha (unctuous) substances, then that will lead to increase of Kapha Dosha in the Amashaya and decreased movement of Pranavata in the Amashaya, the outcome is reversed movement of Vata in the upper alimentary canal. This will lead to the manifestation of vomiting.

Excess consumption of unctuous substances will be responsible for stasis of the food for longer period of time than usual (> 2 hours), this will lead to the stretching of the stomach along with closure of pyloric sphincter. If the individual still indulges in the consumption of unctuous substances, he will have reverse peristaltic movements, leading to vomiting.

[3] When one speaks of likes and dislikes, it is being operated by limbic system of the brain. In the limbic there are two types of areas: reward centre and punishment centre. When the punishment centre is activated, that will lead to a state called rage. In this situation, there will be activation of sympathetic nervous system and when there is activation of sympathetic nervous system, that will lead to decreased gastrointestinal secretions, increased peristaltic movement and closure of pyloric antrum. In such situation, there will be reverse peristaltic movement leading to the manifestation of vomiting.

Further, as the person is having the aversion towards the food substances, that will lead to irritation of the alimentary canal, leading to the increased secretion in the alimentary canal which further leads to the stretching of the stomach wall, which further adds to the increase of volume of the stomach. This will lead to the initiation of vomiting.

[4] Excess consumption of incompatible food substances will lead to the inflammation of stomach, small intestines etc which in turn is responsible for delayed pyloric emptying, excess stretching of the stomach and antiperistalsis and vomiting.

[5] Psychological disturbances are associated with frequent vomiting.

[6] Round worm infestation is usually responsible for vomiting.

[7] Vomiting is seen in first trimester of pregnancy. This is attributable to hormonal variation observed in the gestation period. This is usually self limiting and mild in nature. Hyperemesis gravidorum, a condition where the lady will be presented with profuse vomiting sometimes associated with electrolyte imbalances may require significant hospital stay for subsidence of the symptoms.

[8] This is responsible for over distention of stomach which further leads to the antiperistalsis and the final end result is vomiting.

[9] Emesis is provoked by unpleasant thoughts and smells originate in the cerebral cortex.

[10] In this context, two meanings have to be learnt. In one context, Hrillasa Rodha (absence of nausea) and Udgara Rodha (absence of eructation). In another context, Hrillasa should be considered separately and Udgara Rodha has to be considered separately. The appearance of nausea before vomiting indicates the cause of vomiting as gastrointestinal origin. In case of neurogenic vomiting, the person may not have nauseating sensation.

[11] This can be attributable to the absence of peristaltic movements associated with closure of pyloric antrum and stretching of the stomach wall.

[12] The presence of salty taste indicates the secretion of the sodium and chloride ions which is increased when there is stretch of the stomach wall.

[13] This can be attributable to fullness of the stomach as a result of closure of pyloric antrum and stretching of the stomach wall and there will be reverse peristaltic movement.

3. *Kaphaja Chardi*
4. *Sannipataja Chardi*
5. *Dvishtartha Samyogaja Chardi*

**5 types as per Madhava Nidana**

1. *Vataja Chardi*
2. *Pittaja Chardi*
3. *Kaphaja Chardi*
4. *Sannipataja Chardi*
5. *Agantuja Chardi*

## Vataja Chardi

**व्यायामतीक्ष्णौषधशोकरोगभयोपवासाद्य तिकर्शितस्य।**
**वायुर्महास्त्रोतसि संप्रवृद्ध उत्क्लेश्य दोषांस्तत ऊर्ध्वमस्यन्॥7॥**
**आमाशयोत्क्लेशकृतां च मर्म प्रपीडयंश्छर्दिमुदीरयेत्तु।**
**हृत्पार्श्वपीडामुखशोषमूर्धनाभ्यर्तिकासस्वरभेदतोदैः॥8॥**
**उद्गारशब्दप्रवलं सफेनं विच्छिन्नकृष्णं तनुकं कषायम्।**
**कृच्छ्रेण चाल्पं महता च वेगे- नार्तोऽनिलाच्छर्दयतीह दुःखम्॥9॥**

Ca.Ci. – 20/7-9

**हृत्पार्श्वपीडामुखशोषशीर्षनाभ्यर्तिकासस्वरभेदतोदैः।**
**उद्गारशब्दप्रबलं सफेनं विच्छिन्नकृष्णं तनुकं कषायम्।**
**कृच्छ्रेण चाल्पं महता च वेगेनार्तोऽनिलाच्छर्दयतीह दुःखम्॥6॥**

Ma.Ni. – 15/6

- Excess exercise
- Consumption of highly irritating medicines
- Grief
- Other preexisting illnesses
- Fear
- Starvation

**Lakshana produced during Vataja Chardi:**

- Chest discomfort and pain on either sides of the chest
- Dryness of the mouth
- Headache
- Pain in the umbilical region
- Cough
- Hoarseness of voice
- Pricking type of pain
- While vomiting, the sound produced will be very loud
- Presence of foams in the vomitus
- Nature of vomitus is scattered and black colour, soft and astringent taste in mouth while vomiting
- The person feels very miserable.

## Pittjaja Chardi

**अजीर्णकट्वम्लविदाह्यशीतै रसायनीभिर्विसृतं प्रपीड्य मूर्च्छापिपासामुखशोषमूर्ध- पीतं भृशोष्णं हरितं सतितं रामाशये पित्तमुदीर्णवेगम्।**
**मर्मोर्ध्वमागम्य वामें करोति॥10॥**
**ताल्वाक्षिसंतापतमोभ्रमार्तः।**
**धूम्रं च पित्तेन वमेत् सदाहम्॥11॥**

Ca.Ci. – 20/10,11

**मूर्च्छापिपासामुखशोषमूर्ध तालवक्षिसन्ताप तमोभ्रमार्तः।**
**पीतं भृशोष्णं हरितं सतितं धूम्रं च पित्तेन वमेत्सदाहम्॥7॥**

Ma.Ni. – 15/7

- Indigestion state of the vomiting
- Consumption of *Katu* (pungent) and *Amla* (sour) substances
- Consumption of *Vidahi* (substances which cause burning sensation and thirst) substances
- Consumption of *Ushna* (hot in potency) substances

## Lakshana of Pittaja Chardi

- Altered state of consciousness
- Thirst
- Dryness of mouth
- Increased temperature in the head region
- Increased temperature in the palate
- Increased temperature around the eyes
- Darkness in front of the eyes
- Giddiness
- Vomitus will be of yellow, green colour associated with bitter taste in the mouth and the person will have burning sensation and he will have feeling of smoke coming from the mouth

## Kaphaja Chardi

**स्निग्धातिगुर्वामविदाहिभोज्यैः स्वप्नादिभिश्चैव कफोऽतिवृद्धः।**
**उरः शिरो मर्म रसायनीश्च सर्वाः समावृत्य वामें करोति॥12॥**
**तन्द्रास्यमाधुर्यकफप्रसेक संतोषनिद्रारुचिगौरवार्तः।**

Ca.Ci. – 20/12,13

**स्निग्धं घनं स्वादु कफाद्विशुद्धं सलोमहर्षोऽल्परुजं वमेत्तु॥13॥**

Ma.Ni. – 15/8

- Excess consumption of *Snigdha* (unctuous) substances
- Excess Guru (heavy to digest) substances
- Excess improperly cooked substances
- Excess sleep

## Lakshana of Kaphaja Chardi

- Drowsiness
- Sweetish taste in the mouth
- Excess salivation
- Early satiety
- Excess sleep
- Tastelessness

- Heaviness of the body parts
- Vomitus will be unctuous, sweetish state in the mouth with mucus
- Horripulation
- Mild discomfort during vomiting

## Sannipataja Chardi

समश्नतः सर्वेरसान् प्रसक्त मामप्रदोषर्तुविपर्ययैश्च।
सर्वे प्रकोपं युगपत् प्रपन्ना श्छर्दिं त्रिदोषां जनयन्ति दोषाः॥14॥
शूलाविपाकारुचिदाहतृष्णा 'श्वासप्रमोहप्रबला प्रसक्तम्।
छर्दिस्त्रिदोषाल्लवणाम्लनीलसान्द्रोष्णारक्तं वमतां नृणां स्यात्॥15॥

Ca.Ci. – 20/14,15

शूलाविपाकारुचिदाहतृष्णाश्वासप्रमोहप्रबला प्रसक्तम्।
छर्दिस्त्रिदोषाल्लवणाम्लनीलसान्द्रोष्णारक्तं वमतां नृणां स्यात॥9॥

Ma.Ni. – 15/9

- Consumption of substances which are having all six *Rasa*
- Consuming the food substances in the state of *Amapradosha* (acute condition related alimentary canal where the person will have pain abdomen and vomiting and diarrhoea)
- Consuming the substances not in accordance to a particular season

## Lakshana of Sannipataja Chardi

- Pricking type of pain
- Impaired digestion
- Tastelessness
- Burning sensation
- Thirst
- Breathing discomfort
- Confusion
- Vomitus will have bluish, reddish colour with salt and sour taste during vomiting with dense consistency and hot

## Dvishtartha Samyogaja Chardi

द्विष्टप्रतीपाशुचिपूत्यमेध्यबीभत्सगन्धाशनदर्शनैश्च।
यच्छर्दयेत्तप्तमना मनोनैर्द्विष्टार्थसंयोगभवा मता सा॥ 18॥

Ca.Ci. – 20/18

- Seeing the things which are disliked by an individual such as unclean substances, foul smelling substances such as decaying dead body, fearful situations etc
- This is responsible for the affliction in *Manas* responsible for the manifestation of *Chardi*

## Agantuja Chardi

वीभत्सजा दौर्हदजाऽऽमजा च असात्म्यजा च क्रिमिजा च या हि।
सा पञ्चमी तां च विभावयेच्च दोषोच्छ्र्येणैव यथोक्तमादौ॥12॥

Ma.Ni. – 15/12

This type of *Chardi* is mentioned depending upon the external causes. The causes mentioned for this type of *Chardi* are as follow:

- Seeing ferocious thing or substance
- Pregnancy
- State of indigestion
- Consumption of incompatible substances
- Presence of worm infestation

## Upadrava of Chardi

( कासश्वासोऽज्वरो हिक्का तृष्णा वैचित्यमेव च।
हृद्रोगस्तमकश्चैव ज्ञेयाश्छदेरुपद्रवाः॥15॥) Ma.Ni. – Chardi/15

- Cough
- Breathing discomfort[14]
- Raised body temperature[15]
- Hiccups[16]
- Thirst[17]
- Abnormal function of mind[18]
- Heart disease[19]
- Darkness in front of the eyes[20]

---

GK

[14] These symptoms are attributable to the manifestation of aspiration pneumonia which develops due to antiperistalsis movement in the stomach, relaxation of lower and upper oesophageal sphincter and there will be closure of mouth facilitating the movement of food from the stomach into the respiratory passageways. It may enter into nasal pathways or into the trachea. These two symptoms are life threatening, if we are not taking adequate care during the aspiration. If the size of the food entering into the trachea is large enough, then the person may have choking effect and the person may lose his life suddenly.

[15] This may occur in pneumonia develops after aspiration. This is associated with cough which may have whitish, yellowish to greenish coloured sputum.

[16] The most common cause of hiccups is gastric distension after rapid ingestion of food, alcohol or air. Other common causes include excitement and sudden change in temperature either of the environment or of the stomach induced by very hot or very cold food intake. When an individual having hiccups after vomiting, it usually results because of diaphragmatic irritation.

[17] This is attributable to the poor fluid intake secondary to the increased frequency of vomiting leading to hypovolemia.

[18] This is attributable to hypovolemia, hypoglycemia or electrolyte imbalances which can result in episodes of syncope in affected individuals.

[19] One probable hypothesis can be put forth for the relation between vomiting and heart disease is hypokalemia. Abnormal potassium in the blood either hyperkalemia or hypokalemia will be responsible for the heart disease, particularly rhythm disturbances. In case of vomiting, it is hypokalemia will be responsible for the manifestation of heart disease.

[20] This is attributable to syncopal episodes.

## Sadhyasadhyata of Chardi

क्षीणस्य या छर्दिरतिप्रसक्ता सोपद्रवा शोणितपूययुक्ता।
सचन्द्रिकांतां प्रवदेदसाध्यां, साध्यां चिकित्सेन्निरुपद्रवां च॥14॥

Ma.Ni. – Chardi/4

- If the person is having *Dhatukshaya*[21] (excess depletion of body tissues)
- If the person is having frequent episodes of vomiting[22]
- If the person is presented with *Upadrava*[23] (complications)
- If the vomitus[24] contains blood or pus or both
- If the vomitus contains multiple colours like peacock feather[25]

### Key points of the chapter

छादयन्नाननं वेगैरर्दयन्नङ्गभञ्जनैः निरुच्यते छर्दिरिति दोषो वक्त्रं प्रधावितः॥4॥

- Vitiated Dosha is responsible for Chardi is Vata Dosha. This will lead to filling up of oral cavity and it occurs in episodes. This is responsible for various discomfort and various movements of the body such as holding the chest or forehead by one hand and another hand to the mouth etc.
- Chardi (vomiting) may manifest due to the irritation of the stomach, intestine or irritation of the vomiting centre or may be due to the increase in intracranial pressure. It may occur due to the dietary habits such as consumption of salt or in case of first trimester of pregnancy.
- Sankhya Samprapti of Chardi is of 5 types, Vataja, Pittaja, Kaphaja, Sannipataja and Dvishtarthasamyogaja Chardi.
- Most of the Upadrava manifest due to the excess fluid loss from the body or due to the presence of blood in the vomitus or due to electrolyte imbalances. Depending upon the duration of the illness, severity of symptoms, Sadhyasadhyata of Chardi is decided.

### Self-Assessment: Questions for Review

#### Long essays

- Define Chardi. Exaplain the Nidana Panchaka of Chardi.

#### Short essays

- Explain the Samprapti Ghataka of Chardi
- Explain the Nidana of Chardi
- Explain Dvishtarthasamyogaja Chardi
- Explain the Sadhyasadhyata of Chardi

#### Short answers

- Enumerate the types of Chardi
- Write Sankhya Samprapti of Chardi
- Write the definition of Chardi
- Write a short note on Dvishtarthasamyogaja Chardi

#### MCQs

1. **Dvishtarthasamyogaja is the type of**

   a. Gulma;　b. Chardi;
   c. Arochaka;　d. Grahani

   *Answer:* (b)

2. **Sankhya Samprapti of Chardi is**

   a. 4;　b. 5;
   c. 6;　d. 7

   *Answer:* (b)

3. **Projectile vomiting is seen in which of the following types of vomiting**

   a. Gastritis;　b. Duodenitis;
   c. Gastroenteritis;　d. Brain tumour

   *Answer:* (d)

---

GK

[21] In this occasion, the person will have hypoglycemia or electrolyte imbalances or nutrition deficiency. If proper supplementation is not done, that may lead to serious complication such as comatose state etc.

[22] Frequent episodes of vomiting refers to rapid fluid loss from the body. In other words, there will be shrinkage of intravascular, interstitial and intracellular compartments rapidly owing to frequent vomiting.

[23] When Chardi is associated with Upadrava then it indicates severity of the clinical condition. If the person is having two or more Upadrava, it indicates the person is suffering from severe form of the clinical condition.

[24] When blood is present in the vomitus, it indicates the person is having gastrointestinal bleeding. It may indicate either simple gastritis or peptic ulcer disease or cirrhosis of the liver or carcinoma of the stomach. It could be either trivial disease or life threatening disease. When the person is having the pus in the vomitus, it indicates the progression of infection in the stomach.

[25] The colour which resembles peacock feather is observed when there is presence of oil or unctuous substance in the vomitus. This is seen when there is presence of fat or lipids in the vomitus. In other words, when you observe multiple colours like feather of peacock, it indicates that the person is having fat indigestion, the absorption of which is very much essential for the storage of energy in the body. If the person is presented with persistent and frequent vomiting, this may lead to the shift of utilisation of energy from carbohydrate to fat metabolism. Thus, the person may have rapid energy loss in the body which can be fatal at times.

4. **Chardi is considered to be ................ Srotogata Vikara.**
   - a. Raktavaha;
   - b. Rasavaha;
   - c. Annavaha;
   - d. Udakavaha

*Answer:* (c)

5. **Udbhava Sthana of the disease Chardi is**
   - a. Amashaya;
   - b. Pakvashaya;
   - c. Both a and b;
   - d. None of the above

*Answer:* (a)

### Chapter resources

- Charaka Samhita Chikitsa Sthana 20th chapter, Chardi Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra 49th chapter – Chardi Pratishedha Adhyaya
- Madhava Nidana 15th chapter – Chardi Nidana
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

3

# Amlapitta

**Learning Objectives**

- To learn the concept of Amlapitta
- To learn the Nidana (aetiology) and Samprapti of the disease along with the understanding of western physiology
- To learn the Purvarupa, Samanya Lakshana, Vishishta Lakshana and Sadhyasadhyata of the disease along with understanding of western physiology
- To frame out the probable Samprapti Ghataka based on the progression of the disease

## Introduction

अम्लपित्तं चेति अम्लगुणोद्रिक्तं पित्तम॥ Chakra, Ca.Ci. – 15/47

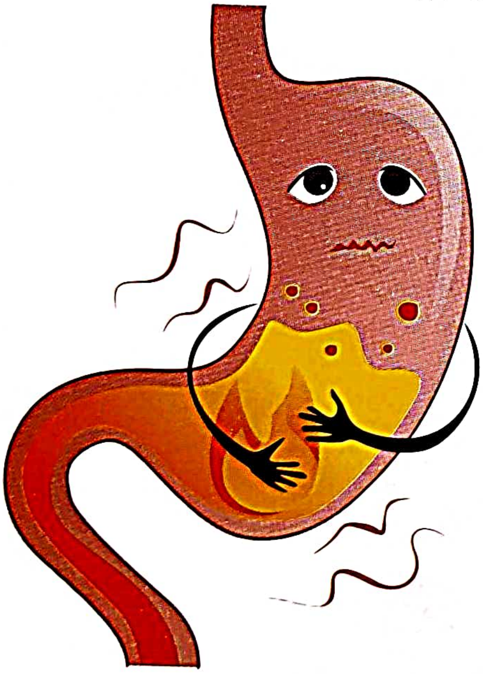


**Figure 6:** Pratyatma Lakshana of Amlapitta

*Amlapitta* is a spectrum of diseases where the individual presents with burning sensation in the chest and sour or bitter taste in the mouth frequently. This usually occurs in the patients who are having the chronic exposure to *Pitta* vitiating etiological factors. *Annavaha, Pranavaha* and *Rasavaha Srotas* will be afflicted during the pathogenesis. As the person of *Amlapitta* will have exposure from oral cavity, there will be affliction of *Annavaha* and *Pranavaha Srotas* in most of the occasions. *Purishavaha Srotas* affliction can be observed in the patient who is having downward movement of morbid *Dosha* in *Mahasrotas* (gastrointestinal tract). This is considered to be the *Pitta* dominant illness, afflicting *Rasa Dhatu* involving *Annavaha, Pranavaha* and *Rasavaha Srotas*. This is usually manifested due to *Sanga* and *Vimargagamana*. When you observe the aetiological factors, most of the causes will be responsible for the increase of *Tejo Mahabhuta* in the body. As far as the type of *Vyadhi* is concerned, *Amlapitta* is categorized under *Sharirika* variety of *Doshabala Pravritta Vikara* of *Adhyatmika Vikara*.

## Amlapitta Nidana

बिरुद्धदुष्टाम्लविदाहिपित्तप्रकोपपानान्नभुजो विदग्धम्।
पित्तं स्वहेतूपचितं पुरा यत्तदम्लपित्तं प्रवदन्ति सन्तः॥1॥

Ma.Ni. – 51/1

- Excess consumption of *Viruddha Ahara*[1] e.g. consumption of milk and fish together; consumption of ghee and honey together etc
- Consumption of stale food

---

GK

[1] पाण्ड्यान्ध्यवीसपेदकोदराणां विस्फोटकोन्मादभगन्दराणाम्। मूर्च्छामदाध्मानगलग्रहाणां 'पाण्डामयस्यामविषस्य चैव॥102॥
किलास कुष्ठग्रहणीगदानां शोथाम्लपित्तज्वर पीनसानाम्। सन्तानदोषस्य तथैव मृत्योविरुद्धमन्नं प्रवदन्ति हेतुम्॥103॥ Ca.Su. – 26/102, 103
Amlapitta is one of the many Vikara manifested due to the frequent consumption in Viruddha Ahara.

- Excess consumption of *Amla* (sour) *Rasa* substances[2]
- Excess consumption of *Vidahi* (burning sensation in the chest and thirst inducing) substances[3]
- Excess consumption of foods and drinks which vitiate the *Pitta Dosha* in the body[4]

## Samprapti Ghataka

- **Dosha :** *Pitta*
- **Dushya :** *Rasa*
- **Srotas :** *Annavaha, Pranavaha and Rasavaha Srotas* in *Urdhvaga Amlapitta; Annavaha, Purishavaha* and *Rasavaha Srotas* in case of *Adhoga Amlapitta*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira* (in case of involvement of *Rasa Dhatu*)
- **Vyakta Sthana :** *Vaktra*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhi Svabhava :** *Ashukari* or *Chirakari*
- **Sadhyasadhyata :** *Sadhya* to *Pratyakhyeya* depending upon the duration and progression of the disease

## Amlapitta Samanya Lakshana

अविपाकमोक्लेशतिकाम्लोद्गारगौरवैः।
हत्कण्ठदाहारुचिभिश्चाम्लपित्तं वदेद्भिषक्।।2।। Ma.Ni. – 51/2

- Impaired digestion[5]
- Exhaustion without any physical activities[6]
- Nausea[7]
- Bitter or sour eructations in the mouth[8]
- Heaviness of the abdomen[9]
- Burning sensation in the chest
- Burning sensation in the throat[10]
- Tastelessness[11]

---

GK

[2] The term stale food refers to no longer a fresh food. This is responsible for the proliferation of microorganisms. If a person consumes such type of food substances, that may lead to the inflammation of gastric mucosa and thus the person may present with burning sensation in the epigastric region. Nowadays, most of the individuals consume items prepared in bakeries, if kept for longer time in room temperature, there may be likely proliferation of the fungi on the bakery items, bread and buns in particular. These are responsible for inflammation of the upper alimentary canal.

[3] Vidahi substances are having Tejo Mahabhuta predominance in them. Excess consumption of these substances are likely to increase the Pitta Dosha abnormally.

These substances are likely to increase the acidity of chyme which in turn increase the concentration of hydrochloric acid in the stomach and this is responsible for the inhibitory movement of acidic chyme into the duodenum which in turn leads to the reverse peristaltic movement of these food substances. Thus, the person may present with burning sensation in the retrosternal region, throat and mouth associated with sour or bitter eructations.

[4] Pitta vitiating substances are having Tejo Mahabhuta predominance in them. Excess consumption of these substances are likely to increase the Pitta Dosha abnormally.

These substances are likely to increase the acidity of chyme which in turn increase the concentration of hydrochloric acid in the stomach and this is responsible for the inhibitory movement of acidic chyme into the duodenum which in turn leads to the reverse peristaltic movement of these food substances. Thus, the person may present with burning sensation in the retrosternal region, throat and mouth associated with sour or bitter eructations.

[5] This is attributable to the impaired digestion occurring in an individual due to abnormal Pitta function. Indigestion can occur due to abnormal Vata or Kapha functioning in the body. in this occasion, we can see most of the aetiological factors are Pitta vitiating ones and these are usually responsible for the Pitta vitiation which in turn responsible for the impaired digestion. This can occur due to the abnormal Drava (liquid), Tikshna (sharp potency), Laghu (light to digest), Snigdha (unctuous) qualities in the body.

[6] This is attributable to the impaired digestion occurring in an individual due to abnormal Pitta function. Indigestion can occur due to abnormal Vata or Kapha functioning in the body. in this occasion, we can see most of the aetiological factors are Pitta vitiating ones and these are usually responsible for the Pitta vitiation which in turn responsible for the impaired digestion. This can occur due to the abnormal increase in Drava (liquid), Tikshna (sharp potency), Laghu (light to digest), Snigdha (unctuous) qualities in the body.

[7] This is attributable to the presence of irritating substances in the gastrointestinal tract either in the stomach or duodenum. This will increase the contents in the stomach and/ or duodenum which may result in nausea and this will be followed by vomiting.

[8] This is attributable to the presence of irritating substances in the gastrointestinal tract either in the stomach or duodenum. This will increase the contents in the stomach and/ or duodenum because of inward movement of fluid from the mucosa of stomach into the stomach diluting the gastric juice. This will increase the volume of stomach content, which may result in nausea and this will be followed by vomiting.

[9] Heaviness of the abdomen is attributable to the presence of macromolecules or intermediate molecules in the stomach due to partial digestion or complete indigestion of the food.

[10] This is attributable to the increase Pitta Dosha in Amashaya. This Lakshana occurs as a result of continuous exposure to aetiological factors which increase Tejo Mahabhuta in the body. There will be reverse peristaltic movement of partially digested substances. These substances contain hydrochloric acid too. That is the reason, when the person has this symptom, it indicates that there is presence of hydrochloric acid in the contents of the stomach.

[11] This is attributable to dilution of gastric juices. When an individual consumes excess spicy substances, that will lead to the increased secretion of mucus which protects the gastric mucosa from these irritating substances. This mechanism will dilute the gastric juices and the person may have tastelessness or unable to perceive the taste when he has developed eructation..

## Bheda of Amlapitta

2 types depending upon the movement of *Dosha* in the body:

1. *Urdhvaga Amlapitta*
2. *Adhoga Amlapitta*

4 types depending upon the *Dosha* dominance in the manifestation of the disease

1. *Vataja Amlapitta*
2. *Vata Kaphaja Amlapitta*
3. *Kaphaja Amlapitta*
4. *Kapha Pittaja Amlapitta*

## Adhoga Amlapitta

तृड्दाहमुच्छोभ्रममोहकारि प्रयात्यधो वा विविधप्रकारम्।
हल्लासकोठानलसादहर्षस्वेदाङ्गपीतत्वकरं कदाचित्॥3॥
Ma.Ni. – 51/3

- Thirst
- Burning sensation in the abdomen
- Altered state of consciousness
- Giddiness
- Confusion
- Nausea
- Skin eruption
- Loss of appetite
- Horripilation
- Excess sweating
- Yellowish discolouration of the body parts

## Urdhvaga Amlapitta

वान्तं हरित्पीतकनीलकृष्णमारकरक्ताभमतीव चाम्लम्।
मांसोदकाभं त्वतिपिच्छिलाच्छं श्लेष्मानुजातं विविधं रसेन॥4॥
भुक्ते विदग्धे त्वथवाऽप्यभुक्ते करोति तिक्ताम्लवमिं कदाचित्।
उद्गारमेवंविधमेव कण्ठहृत्कुक्षिदाहं शिरसो रुजं च॥5॥
करचरणदाहमौष्ण्यं महतीमरुचि ज्वरं च कफपित्तम्।
जनयति कण्डूमण्डलपिडकाशत निचितगात्ररोगचयम्॥6॥
Ma.Ni. – 51/4-6

- Vomiting with vomitus having greenish, yellowish, bluish, blackish, reddish discolouration or frank blood in the vomitus
- Sour eructation in the mouth
- Sometimes the colour of vomitus will be similar to the colour of meat soup and excess slimy and clear content.
- Vomiting associated with bitter or sour taste when the person is doing fasting or during digestion of food
- Bitter or sour eructation
- Burning sensation in the throat, chest and abdomen
- Headache
- Burning sensation in the palms and soles
- Warmth in the palms and soles
- Tastelessness
- Raised body temperature
- When the person is having the *Kapha* and *Pitta* during the manifestation, there will be Itching
- Skin eruptions

## Vataja Amlapitta

कम्पप्रलापमूर्च्छाचि मिचि मिगानाबाद्शूलानि।
तमसो दर्शनविभ्रम विमोहहर्षाण्यनिलकोर्पात्॥9॥
Ma.Ni. – 51/9

- Involuntary movements
- Irrelevant and incomprehensible speech
- Altered state of consciousness
- Tingling sensation
- Sluggish movements of the body parts
- Pain abdomen
- Darkness in front of the eyes
- Giddiness
- Confusion
- Horripilation

## Kaphaja Amlapitta

कफनिष्ठीवनगौरवजडतारुचिशीतसादय मिलेपाः।
वहनवलसादकण्डनिनार्हिं कफानुगते॥10॥
Ma.Ni. – 51/10

- Expectoration of sputum
- Heaviness of the body
- Tastelessness
- Coldnesss of the body
- Sluggish movement of the body parts
- Vomiting
- Coating over the tongue
- Loss of appetite
- Itching

## Vatakaphaja Amlapitta

उभयमिदमेव चिह्न मारुतकफसंभवे भवत्यम्ले। Ma.Ni. – 51/11

- In case of *Vatakaphaja Amlapitta*, mixed features of *Vataja* and *Kaphaja Amlapitta* are observed.

## Kaphapittaja Amlapitta

( तिकालकटुकोद्गारहृत्कुक्षिकण्ठदाहकृत्॥11॥ )

भ्रमो मूर्च्छारुचिश्छर्दिरालस्यं च शिरोरुजा।
प्रसेको मुखमाधुर्यं श्लेष्मपित्तस्य लक्षणम्॥1 2॥ Ma.Ni. – 51/ 11,12

- Bitter or sour or pungent eructations
- Burning sensation in the chest region
- Burning sensation in the abdomen
- Burning sensation in the throat
- Giddiness
- Altered state of consciousness
- Tastelessness
- Vomiting
- Laziness
- Headache
- Excess salivation
- Sweetish taste in the mouth

## Sadhyasadhyata of Amlapitta

रोगोऽयमम्लपित्ताख्यो यत्नात् संसाध्यते नवः।
चिरोत्थितो भवेद्याप्यः कृच्छ्रसाध्यः स कस्यचित्॥7॥

Ma.Ni. – 51/7

- *Amlapitta* of recent onset is curable with much effort [12]
- *Amlapitta* of longer duration is considered to be palliable, but sometimes is treatable with difficulty if proper care is being given[13]

### Key points of the chapter

- अम्लपित्तं चेति अम्लगुणोद्रिक्तं पित्तम्॥ *Chakra,* Ca.Ci. – 15/47.
- Amlapitta is a spectrum of the diseases where we are going to observe the Amlatva (sourness) to be increased in the body. This is presented with burning sensation of the chest and throat, sour or bitter eructation from the mouth and indigestion due to the abnormal functioning of Pitta.
- The Nidana mentioned in the context of Amlapitta is responsible for the increase of Tejo Mahabhuta in the body which in turn leads to the vitiation of Pitta Dosha in its Ushna, Tikshna qualities. Most of the Lakshana mentioned in the context of Amlapitta indicates the abnormal increase of Pitta Dosha in the body.
- No Purvarupa are mentioned in the context of Amlapitta.
- 2 types of Amlapitta are mentioned based on the movement of abnormal Pitta in the body. They are Urdhvaga and Adhoga Amlapitta. Based on the Dosha dominance in the manifestation of the disease, 4 types are described. They are Vataja, Vatakaphaja, Kaphaja and Kaphapittaja Amlapitta.

### Self-Assessment: Questions for Review

#### Long essays

- Define Amlapitta. Explain Nidana, Samprapti, Samprapti Ghataka and Bheda of Amlapitta

#### Short essays

- Explain the Samprapti and Samprapti Ghataka of Amlapitta
- Explain the Nidana of Amlapitta
- Explain Samanya Lakshana of Amlapitta
- Explain the types of Amlapitta
- Explain Urdhvaga Amlapitta
- Explain Adhoga Amlapitta

#### Short answers

- Define Amlapitta
- Enumerate the types of Amlapitta
- Enumerate the types of Amlapitta based on Dosha dominance
- Write a short note on Urdhvaga Amlapitta
- Write a short note on Adhoga Amlapitta
- Explain in brief about Samanya Lakshana of Amlapitta

#### MCQs

**1. Types of Amlapitta based on movement of vitiated Pitta are**

a. 2; b. 3;
c. 5; d. 4

*Answer*: (a)

**2. Types of Amlapitta based on Dosha dominance as per Madhavakara are**

a. 2; b. 3;
c. 4; d. 5

*Answer*: (c)

**3. Anubandhya Dosha in the process of manifestation of Amlapitta is**

a. *Pitta;* b. *Vata;*

---

[12] Usually Amlapitta of recent onset is usually having the mild exposure of the aetiological factor for the manifestation of the disease. The deeper Dhatu involvement will not be observed in this situation, hence the disease is curable if proper plan of treatment is adopted.

[13] Usually Amlapitta of recent onset is usually having the mild exposure of the aetiological factor for the manifestation of the disease. The deeper Dhatu involvement will not be observed in this situation, hence the disease is curable if proper plan of treatment is adopted.

c. *Vata and Kapha*; d. *Vata or Kapha*

*Answer*: (a)

**4. Dosha responsible for the manifestation of Urdhvaga Amlapitta are**

a. *Pitta Kapha*; b. *Pitta Vata*;
c. *Vata Kapha*; d. *Vata Pitta*

*Answer*: (a)

**5. Type of Udgara (belching) seen in the patient of Amlapitta is/are**

a. *Tiktodgara*;
b. *Amlodgara*;
c. *Tikta* or *Amlodgara*;
d. *Madhura Udgara*

*Answer*: (c)

**6. Amlapitta are common in ................type of patients.**

a. Balyavastha;
b. Madhyamavastha;
c. Vriddhavastha;
d. All of the above

*Answer*: (b)

**7. As per Kashyapa, Amlapitta is more commonly seen in**

a. Jangala Desha;
b. Sadharana Desha;
c. Anupa Desha;
d. All of the above

*Answer*: (c)

**8. Which of the following is considered as Nidana of Amlapitta?**

a. Kulattha;
b. Madyapana;
c. Viruddhashana;
d. All of the above

*Answer*: (d)

**9. As per Charaka, which of the following is considered as Amlapitta Jananam Shreshtham?**

a. Kulattha;
b. Madyapana;
c. Viruddhashana;
d. All of the above

*Answer*: (a)

**10. Which of the following is specifically involved in Adhoga Amlapitta patients?**

a. Mutravaha Srotas;
b. Artavavaha Srotas;
c. Purishavaha Srotas;
d. None of the above

*Answer*: (c)

### Chapter resources

- Madhava Nidana 51st chapter – Amlapitta Nidana
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

# 4

# Shula Parinama Shula Annadrava Shula

**Learning Objectives**

- To learn the concept of Shula
- To learn the Nidana Panchaka of Shula mentioned in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease

## Introduction

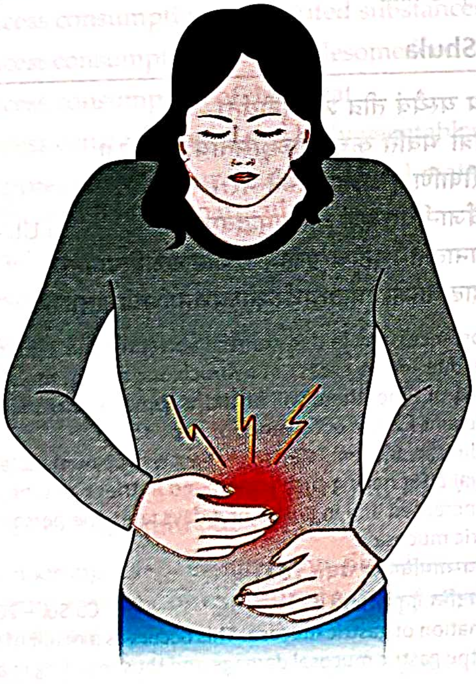


**Figure 7:** Pratyatma Lakshana of Shula

*Shula*[1] is the spectrum of diseases where the person will be suffering from pricking type of pain in the abdominal region. It is sharp and piercing type of pain. It is *Annavaha Srotovikara* which is caused by the vitiation of *Vata Dosha*. This is manifested by *Sanga* and *Vimargagamana* type of *Srotodushti*. As far as the type of *Vyadhi* as per *Sushruta*, this is caterorised under *Pakvashayasamuttha*, *Doshabala Pravritta Vikara* of *Adhyatmika Vikara*.

## Definition of Shula

शङ्कुस्फोटनवत्तस्य यस्मात्तीव्राश्च वेदनाः।
शूलासक्तस्य लक्ष्यन्ते तस्माच्छूलमिहोच्यते॥81॥ Su.Ut. – 42/81

*Shula* is the term when an individual is presented with severe pricking type of pain in the abdominal region. This is caused by the vitiation of *Vata Dosha*.

## Nidana of Shula

वातमूत्रपुरीषाणां निग्रहादतिभोजनात्॥77॥
अजीर्णाध्यशनायासविरुद्धान्नोपसेवनात्।
पानीयपानात् क्षुत्काले विरूढानां च सेवनात्॥78॥
पिष्टान्नशुष्क मांसानामुपयोगात्तथैव च।
एवंविधानां द्रव्याणामन्येषां चोपसेवनात्॥79॥ Su.Ut. – 42/77-79

- Suppression of urges of flatus, urine and faecal matter[2]
- Excess consumption of food substances
- When an individual is suffering from *Ajirna* (indigestion)
- Excess consumption of food substances at a time in large quantity

---

GK

[1] **Figure 7:** Pratyatma Lakshana of Shula

[2] When an individual suppresses these urges of flatus, faecal matter and urine, that will abnormally increase the Apanavata in the body, which leads to the reverse movement of Vata in the body. This event will lead to the abnormal increase of Samanavata in the body. Samanavata is considered to be one of the six factors responsible for the proper digestion of food (Ahara Parinamakara Bhava). When Samanavata is disturbed, this may have an impact on Ushma, Kleda, Sneha, Kala and Samayoga of Ahara Parinamakara Bhava, leading to dysfunction of Agni. If the person still does suppression of urges, that may lead to the abnormal functioning of Pranavata (reversal of Pranavata).

- Consumption of food substances in excess quantity at a time when he is not having appropriate appetite[3]
- Exertion[4]
- *Viruddha Ahara* (excess consumption of food substances having opposite qualities) e.g. milk and fish together[5]
- Excess consumption of liquid substances at the time of hunger[6]
- Excess consumption of sprouted cereals at the time of hunger[7]
- Excess consumption of substances prepared from flour[8]
- Excess consumption of substances prepared by dry meat[9]

## Samprapti of Shula

वायुः प्रकुपितः कोष्ठे शूलं संजनयेद्धृशम्। Su.Ut. – 42/80
निरुच्छ्वासो भवेत्तेन वेदनापीडितो नरः॥80॥

- *Vata* will be vitiated due to above said etiological factors
- Sudden development of pricking type of pain in the abdomen
- Breathing discomfort due to pain abdomen

## Samprapti Ghataka

- **Dosha :** *Vata*
- **Dushya :** *Rasa, Mamsa*
- **Srotas :** *Rasavaha, Annavaha, Mamsavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana :** *Sarva Sharira* (as *Rasa Dhatu* involved)
- **Vyakta Sthana :** *Kukshi*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhyavastha :** *Ashukari*

## Types of Shula

**8 types of Shula**

1. *Vataja Shula*
2. *Pittaja Shula*
3. *Kaphaja Shula*
4. *Vata Pittaja Shula*
5. *Pitta Kaphaja Shula*
6. *Kapha Vataja Shula*
7. *Sannipataja Shula*
8. *Amaja Shula*

## Vataja Shula

निराहारस्य यस्यैवं तीव्र शूलमुदीर्यते।
प्रस्तब्धगात्रो भवति कृच्छ्रेणोच्छ्रसितीय च॥82॥
वातमूत्रपुरीषाणि कृच्छ्रेण कुरुते नरः।
एतैर्लिङ्गैर्विजानीयाच्छूलं वातसमुद्भवम्॥83॥ Su.Ut. – 42/82,83
व्यायामयानादतिमैथुनाच प्रजागराच्छीतजलातिपानात्।
कलायमुद्गाढकिकोरदूषादत्यर्थरुक्षाध्यशनाभिघातात्॥2॥

---

3 When an individual consumes food substances in these patterns, then food substances stay in the stomach for more than 2 hours. This will lead to the increase of Shuktatva (sourness) of ingested food. This sourness is due to the excess of hydrochloric acid in the stomach. As the food substances with hydrochloric acid stay in the stomach for more amount of time, there will be more damage occurs to the gastric mucosa resulting in thinning of mucosa. This could be considered as a primary event for the occurrence of peptic ulcer.

4 More exertion inducing activities will lead to the depletion of body nutrients, glucose, fats and electrolytes such as sodium, potassium and calcium. There will be more amount of water loss from the body. If the individual after having such a profound nutrient loss, he is not consuming the food, that may lead to the initial hydrochloric acid secretion to be increased and in next 3 or 4 days later, the person may have reduced gastric juice secretion. Both of these mechanisms are harmful for gastric mucosa.

5 पाण्ड्यान्ध्यवीसर्पदकोदराणां विस्फोटकोन्मादभगन्दराणाम्। मूर्च्छामदाध्मानगलग्रहाणां पाण्ड्वामयस्यामविषस्य चैव॥ 102।
किलास कुष्ठग्रहणीगदानां शोथाम्लपित्तज्वर पीनसानाम्। सन्तानदोषस्य तथैव मृत्योविरुद्धमन्नं प्रवदन्ति हेतुम्॥103॥ Ca.Su. – 26/102, 103
Usually, when an individual indulges in Viruddha Ahara, that will lead to inflammation of gastric mucosa. This occurs as a result of prolonged stay of ingested food and incompatible food substances intake. This will lead to the gastric mucosal damage and thus resulting in acid peptic disease.

6 When an individual consumes more amount of Drava (liquid) substances, that will lead to the increase of Drava quality in the alimentary canal which is one of the qualities of Pitta Dosha. Due to the consumption of excess liquid, there is a possibility of abnormal increase of Pitta because of Drava quality, but there will be normal proportions of other qualities of Pitta.
As per current understanding, when an individual consumes more amount of water or liquid substances at the time of taking food, that will dilute the hydrochloric acid and the person may suffer from indigestion owing to poor hydrochloric acid and inactivation of pepsinogen.

7 Consumption of sprouted cereals particularly soaked in contaminated water is considered to be the main reason for the development of symptoms of food poisoning.

8 Flour is a low moisture food product, a high risk for microbial contamination. This has been identified as a source of pathogenic bacteria, including salmonella and E coli. Thus, frequent flour consumption can have adverse effects on the health of the individual.

9 Though in current days, dry meat is considered to be safe food, but elimination of contamination of pathogen cannot be ensured after processing of meat. That may be the reason, if a person has the habit of consumption of dry meat, the person may have digestive impairment in due course of time.

कषायतिकातिविरुढ जान्नविरुद्धवरक शुष्क शाकात्।
विशुक्र मूत्रानिलवेगरोधाच्छोकोपवासादतिहास्य भाष्यात्॥3॥
वायुः प्रवृद्धो जनयेद्धि शूलं हत्पार्श्वपृष्ठन्त्रिकवस्तिदेशे।
जीर्णे प्रदोषे च धनागमे च शीते च कोपं समुपैति गाढम्॥4॥
मुहुर्मुहुथ्योपशमप्रकोपी विद्वातसंस्तम्भनतोदभेदैः।
संस्वेदनाभ्यञ्जनमर्दनाद्यैः स्निग्धोष्णभोज्यैश्च शमं प्रयाति॥5॥

Ma.Ni. – 26/2-5

- Excess physical exercise
- Excess traveling
- Excess sexual intercourse
- Avoiding sleep at night
- Excess consumption of cold water
- Excess consumption of *Kalaya, Mudga, Adhaki, Koradusha*
- Excess consumption of dry foods
- Excess consumption of food substances before the digestion of previously ingested meal
- Trauma to the body
- Excess consumption of substances having *Kashaya* (astringent) and *Tikta* (bitter) *Rasa*
- Excess consumption of sprouted substances
- Excess consumption of unwholesome food substances
- Excess consumption of dry meat
- Excess consumption of dry leafy vegetables
- Suppression of natural urges – faecal matter, semen, urine and flatus in particular
- Grief
- Fasting
- Excess laughing and talking

## Lakshana of Vataja Shula

- Pricking type of pain in the *Hridaya* (chest), *Parshva* (sides of the chest), *Trika* (sacrum) and *Basti* (lower abdomen or supra pubic region)
- Worsening of pain after the digestion of food or during evening or exposure to cold environment or cloudy days
- The person will have episodes of pain which may vary in intensity from mild dull aching pain to severe and intolerable pain
- There will be association of constipation, no passage of flatus, stiffness, pricking type and tearing type of pain
- The *Lakshana* may subside on performing *Svedana* (fomentation therapy), *Abhyanga* (massage), *Mardana* (pressing the body parts), *Snigdha* and *Ushna Bhojana* (consumption of unctuous and hot substances)

## Pittaja Shula

तृष्णा दाहो मदो मूर्च्छा तीव्रं शूलं तथैव च।
शीताभिकामो भवति शीतेनैव प्रशाम्यति॥84॥
पतैर्लिङ्गैर्विजानीयाच्छूलं पित्तसमुद्भवम्। Su.Ut. – 42/84,85
क्षारातितीक्ष्णोष्णविदाहितैल निष्पावपिण्याककुलत्थयूषैः।
कवम्लसौवीरसुराविकारैः क्रोधानलायासरविप्रतापैः॥6॥
ग्राम्यातियोगादशनैर्विदग्धैः पित्तं प्रकुप्याशु करोति शूलम्।
तृण्मोहदाहार्तिकरं हि नाभ्यां संस्वेदमूर्च्छाभ्रमचोषयुक्तम्॥7॥
मध्यन्दिने कुप्यति चार्धरात्रे विदाहकाले जलदात्यये च।
शीते च शीतैः समुपैति शान्ति सुस्वादुशीतैरपि भोजनैश्च॥8॥

Ma.Ni. – 26/6-8

- Excess consumption of strong alkaline substances
- Excess consumption of highly irritating substances
- Excess consumption of *Ushna* (hot in potency) substances
- Excess consumption of *Vidahi* (burning sensation of the chest and thirst inducing) substances
- Excess consumption of oily substances
- Excess consumption of beans, horse gram and soups
- Excess consumption of *Katu* (pungent) and *Amla* (sour) *Rasa* substances
- Excess consumption of alcoholic beverages
- Anger
- Excess exposure to fire such as people having the occupation of cooking
- Excess physical exertion
- Excess exposure to sunlight
- Excess sexual intercourse

## Lakshana of Pittaja Shula

- Pain in the umbilical region
- Thirst
- Confusion
- Burning sensation
- Sweating
- Altered state of consciousness
- Giddiness
- Sucking type of pain
- Worsening of pain in mid-noon, midnight, during the digestion of food and *Sharat Rtu* (autumn)
- Relief from pain by exposure to cold environment and consumption of substances having *Shita Virya* (cold in potency), cold water and sweet substances

## Kaphaja Shula

शूलेनोत्पीड्यमानस्य हृल्लास उपजायते॥85॥

अतीव पूर्णकोष्ठत्वं तथैव गुरुगात्रता।
एतच्छ्लेष्मसमुत्थस्य शूलस्योक्तं निदर्शनम्॥86॥ Su.Ut. – 42/85,86
आनूपवारिजकिलाटपयोविकारैम सेक्षुपिष्टकृशरा तिलशष्कुलीभिः।
अन्यैर्बलासजनकैरपि हेतुभिश्च श्लेष्मा प्रकोपमुपगम्य करोति शूलम्॥9॥
हल्लासकास सदनारुचिसंप्रसेकैरामाशये स्तिमितकोष्ठ शिरोगुरुत्वैः।
भुक्ते सदैव हि रुजं कुरुतेऽतिमात्रं सूर्योदयेऽथ शिशिरे कुसुमागमे च॥10॥ Ma.Ni. – 26/9-10

- Excess consumption of meat of aquatic animals such as fish
- Excess consumption of meat of domestic animals such as chicken
- Excess consumption of *Kilata*
- Excess consumption of milk and milk products
- Excess consumption of meat, sugar cane products, flour substances, sesamum products
- Exposure to other *Kapha* vitiating etiological factors

## Lakshana of Kaphaja Shula

- Nausea
- Cough
- Sluggish movements of body parts
- Tastelessness
- Excess salivation
- Feeling of sensation of covering wet cloth over abdominal region
- Heaviness of the abdomen
- Heaviness of the head
- Pain abdomen worsens soon after the consumption of food, during sunrise, in cold season and in winter season

**Dvandvaja Shula:** These are 3 in number depending upon the dominance of *Dosha* in the manifestation of the disease. All these three types show the clinical features which indicate the involvement of two *Dosha* vitiation in the manifestation of disease. It may either *Vata Pitttaja*, *Vata Kaphaja* or *Pitta Kaphaja Shula*.

## Kapha Vataja Shula

बस्तौ हृत्पार्श्वपृष्ठेषु स शूलः कफवातिकः। Ma.Ni. – 26/13

- *Kapha Vataja Shula* is presented with pricking type of pain in the lower abdomen, chest and sides of the chest and back region

## Kapha Pittaja Shula

कुक्षौ हृन्नाभिमध्येषु स शूलः कफपैत्तिकः॥ Ma.Ni. – 26/13

- *Kapha Pittaja Shula* is presented with pricking type of pain in epigastric region

## Vata Pittaja Shula

दाहज्वरकरो घोरो विज्ञेयो वातपैत्तिकः। Ma.Ni. – 26/14

- *Vata Pittaja Shula* is presented with pricking type of pain in the abdomen associated with burning sensation and raised body temperature.

## Sannipataja Shula

सर्वाणि दृष्ट्वा रूपाणि निर्दिशेत्सान्निपातिकम्।
सन्निपातसमुत्थानम साध्यं तं विनिर्दिशेत्॥87॥ Su.Ut. – 42/87
सर्वेषु दोषेषु च सर्वलिङ्गं विद्याद्भिषक सर्वभवं हि शूलम्।
सुकष्टमेनं विषवङ्काकल्पं विवर्जनीयं प्रवदन्ति तज्ज्ञाः॥ 11॥ Ma.Ni. – 26/11

- In this type of *Shula*, the individual will have the exposures of all three *Dosha* vitiating factors, *Lakshana* of all three *Dosha* vitiation will be observed and such type of *Shula* is considered to be *Asadhya* in nature.

## Amaja Shula

आटोपहल्लासवमीगुरुत्व स्तैमित्यकानाहकफप्रसेकैः।
कफस्य लिङ्गेन समानलिङ्गमामोद्भवं शूलमुदाहरन्ति॥12॥ Ma.Ni. – 26/12

- This type of *Shula* is seen in the patients who are having the presence of *Ama* in the *Koshtha*. The *Lakshana* of *Amaja Shula* are
- Gurgling sounds in the abdomen
- Nausea
- Vomiting
- Heaviness of the abdomen
- Sensation of covering the body with wet cloth
- Distension of the abdomen
- Excess salivation
- *Lakshana* which indicate *Kapha Dosha* vitiation

## Sadhyasadhyata of Shula

एकदोषोत्थितः साध्यः कृच्छ्रसाध्यो द्विदोषजः॥14॥
सर्वदोषोत्थितो घोरस्त्वसाध्यो भूर्युपद्रवः। Ma.Ni. – 26/14,15

- *Shula* which is manifested due to the vitiation of single *Dosha* is *Sadhya*[10] (curable)
- *Shula* which is manifested due to the vitiation of dual *Dosha* is *Krichrasadhya*[11] (curable with difficulty)
- *Shula* which is manifested due to the vitiation of all

---

[10] In this condition, the vitiation of Dosha will be mild, usually duration of the illness will be shorter. Degree of involvement of deeper parts of the body is less likely.

[11] In this situation, vitiation of Dosha will be moderate to severe, duration of the illness is prolonged, multiple Dhatu involvement can be observed, depending upon the involvement of tissue, the patient may require more time to have complete recovery from the illness.

three *Dosha* and associated the presence of *Upadrava* (complication)[12] is *Asadhya* (incurable)

## Upadrava of Shula

' वेदना च तृषा मूर्च्छा आनाहो गौरवारुची।
कासः श्वासश्च हिक्का च शूलस्योपद्रवाः स्मृताः'

Madhu, Ma.Ni. – 26/14,15

- Pain abdomen[13]
- Thirst
- Altered state of consciousness[14]
- Distension of the abdomen
- Heaviness of the abdomen[15]
- Tastelessness[16]
- Cough
- Breathing discomfort
- Hiccup[17]

## Parinama Shula

स्वैर्निदानैः प्रकुपितो वायुः संनिहितस्तदा॥15॥
भुक्ते जीर्यति यच्छूलं तदेव परिणामजम्॥16॥
तस्य लक्षणमप्येतत्समासेनाभिधीयते।
कफपित्ते समावृत्य शूलकारी भवेद्बली। Ma.Ni. – 26/15-17

- As the name suggests, the term *Parinama Shula*[18] refers to the occurrence of pain during the digestion of ingested food.
- This is manifested due to the vitiation of *Vata Dosha.*
- Due to the *Avarana* of *Kapha* and *Pitta, Vata* becomes more stronger and responsible for the severe form of abdominal pain.
- *Parinama Shula* is of 7 types depending upon the dominance of *Dosha* in the body.

1. *Vataja Parinama Shula*
2. *Pittaja Parinama Shula*
3. *Kaphaja Parinama Shula*
4. *Vata Pittaja Parinama Shula*
5. *Pitta Kaphaja Parinama Shula*
6. *Vata Kaphaja Parinama Shula*
7. *Sannipataja Parinama Shula*

## Vataja Parinama Shula

आध्मानाटोपविण्मूत्रविबन्धारतिवेपनैः॥17॥
स्निग्धोष्णोपशमप्रायं वातिकं तद्वदेद्भिषक्। Ma.Ni. – 26/17,18

- Distension of the abdomen with pain
- Gurgling sound in the abdomen
- Retention of urine
- Constipation
- Excess involuntary movements
- The relief of symptoms by administration of *Snigdha* (unctuous) and *Ushna* (hot in potency) medications

## Pittaja Parinama Shula

तृष्णादाहारतिस्वेदं कट्वम्ललवणोत्तरम्॥18॥
शूलं शीतशमप्रायं पैत्तिकं लक्षयेद्बुधः। Ma.Ni. – 26/18,19

- Thirst
- Burning sensation
- Excess sweating
- Worsening of discomfort on consumption of *Katu* (pungent), *Amla* (sour) and *Lavana* (salt) *Rasa* substances
- Relief from symptoms by administering *Shita* line of treatment (measures which increase cold impact in the body)

## Kaphaja Parinama Shula

छर्दिहल्लाससंमोहं स्वल्परुग् दीर्घसन्तति॥19॥
कटुतिक्तोपशान्तं च तच्च ज्ञेयं कफात्मकम्। Ma.Ni. – 26/19,20

- Vomiting

---

[12] This is very difficult to manage. All the three Dosha are involved in the pathogenesis and progression of the disease, Deeper tissues involvement can be noticed. The person will have one or more Upadrava during the progression of the disease. Similar Srotas or related Srotas or Srotomula affliction can be observed when there is Upadrava observed in the patient. The treating physician gets confusion which Dosha to be treated first or what should be early line of treatment, unless he is getting necessary expertise in treating such patients.

[13] As Annavaha Srotas is afflicted, its Srotomula i.e. Amashaya can be afflicted in due course of time. Probably, this might be the reason for the development of Upadrava. It may be temperory or persistent. Sometimes, the pain abdomen may occur as a result of perforation of peptic ulcer.

[14] This may be observed when there is involvement of Rasavaha Srotas.

[15] Distension or heaviness of the abdomen may be seen in case of Samana Vata dysfunction. Because of this, the person may have distension and heaviness of the abdomen in the epigastric region.

[16] Arochaka (tastelessness) is the Lakshana observed when there is affliction of either Annavaha Srotas or Rasavaha Srotas.

[17] This is indicative of involvement of Pranavaha Srotas. When the person is having disturbance of Ahara Parinamakara Bhava, Pranavata affliction can be observed. We know the Pranavata has different functions such as Nishvasa (inspiration), Annapravesha (deglutition), Udgara (belching) etc. When there is abnormal Pranavata function, one or all of the above said functions may be disturbed.

[18] The term Parinama Shula indicates the appearance of pain during the digestion of food. It refers to the occurrence of pain after certain time of food consumption. When an individual consumes food, there will be storage of food in the stomach for a period of 2 hours. After about 2 hours, the ingested food which is also called as chyme starts entering into the duodenum. When this chyme comes in contact with the ulcer present in the duodenum, develops the pain. This is termed as Parinama Shula.

- Nausea
- Confusion
- Mild discomfort in the abdomen
- Persistence of discomfort for longer duration
- Relief from symptoms by using *Katu* (pungent) and *Tikta* (bitter) line of treatment

## Dvandvaja and Sannipataja Parinama Shula

संसृष्टलक्षणं बुद्ध्वा द्विदोषं परिकल्पयेत्॥2 0॥
त्रिदोषजमसाध्यं तु क्षीणमांसबलानलम्। Ma.Ni. – 26/20,21

- *Dvandva Doshajanya Parinama Shula* are having mixed clinical features of two Dosha vitiation
- *Sannipataja Parinama Shula* and the person with *Sannipataja Parinama Shula* presented with depletion of muscular tissue, poor physical strength and poor digestive fire is *Asadhya* (incurable) in nature.

## Annadrava Shula

जीर्णे जीर्यत्यजीर्णे वा यच्छूलमुपजायते॥2 1॥
पथ्यापथ्यप्रयोगेण भोजनाभोजनेन च।
न शमं याति नियमात्सोऽन्नद्रव उदाहृतः॥2 2॥
( अन्नद्रवाख्यशूलेषु न तावत्स्वास्थ्यमश्नुते।
वान्तमात्रे जरत्पित्तं शूलमाशु व्यपोहति॥1॥ ) Ma.Ni. – 26/21,22

- In *Annadrava Shula*[19], the person is presented with pain abdomen in any period of time.
- It occurs during the digestion of food, after the complete digestion of food and in the state of indigestion, in case of use of *Pathya* and *Apathya Ahara* and can even occur in the state of fasting or after full meals.
- It will not subside by any means other than vomiting.
- When the person vomits, the vitiated *Pitta* will be expelled out through mouth, the person will be getting relief from the present complaint.

### Key points of the chapter

शत्रुस्फोटनवत्तस्य यस्मात्तीवाश्च वेदनाः। शूलासक्तस्य लक्ष्यन्ते तस्माच्छूलमिहोच्यते॥8 1॥ Su.Ut. – 42/81

- Pricking type of severe pain as if pricked by pointed object such as needle etc is termed as Shula. This is manifested due to the vitiation of Vata Dosha. This is observed in the Kukshi region. It is a Vata dominant disease, involving Rasa, Mamsa, afflicting Annavaha, Rasavaha and Mamsavaha Srotas with Sanga and Vimargagamana as the type of Srotodushti involved in the disease process. Initially there will be involvement of Abhyantara Rogamarga, later we can observe the Bahya Rogamarga involvement during the progression of the disease.
- Sankhya Samprapti of Shula mentioned by Madhavakara is 8. They are Vataja, Pittaja, Kaphaja, Vatapittaja, Pittakaphaja, Vatakaphaja, Sannipataja and Amaja Shula.
- Madhavakara has described two more terminologies under Shula, they are Parinama Shula and Annadrava Shula.
- Parinama Shula is the disease where an individual gets pain during the digestion of food after a certain period of time after the consumption of food. They are of 7 types depending upon the Dosha dominance. Vataja, Pittaja, Kaphaja, Vatapittaja, Pittakaphaja, Vatakaphaja and Sannipataja. This type of pain can be seen in duodenal ulcer.
- Annadrava Shula is the disease where an individual develops pain soon after the consumption of food and it will persist till the food remains in the Amashaya. It gets relieved by vomiting. This type of pain can be seen in gastric ulcer.

### Probable questions asked in the university examination

**Long essay questions**

- Define Shula. Explain the Nidana, Samprapti, Samprapti Ghataka, Bheda, Sadhyasadhyata and Upadrava of Shula
- Define Shula. Explain Parinama Shula and Annadrava Shula in detail

**Short essays**

- Explain Parinama Shula
- Explain Annadrava Shula
- Explain the differences between Parinama Shula and Annadrava Shula
- Explain Samprapti and Samprapti Ghataka of Shula
- Explain Vataja Shula

### MCQs

**1. Shula is considered to be ..................type of Vikara.**

a. Adhyatmika;
b. Adhibhautika;
c. Adhidaivika;
d. None of the above

*Answer*: (a)

**2. Types of Parinama Shula as per Madhavakara**

a. 3; b. 5;

---

[19] The term Annadrava Shula refers to persistence of pain in the abdominal region in any period of time, soon after the consumption of food, during the digestion of food whether the food is either wholesome or unwholesome or compatible or non-compatible. This usually subsides after vomiting. This is usually seen in ulcer present in gastric ulcer.

c. 7; d. Not mentioned

*Answer:* (c)

**3. In which of the following type of Shula, vomiting will relieve the discomfort?**

a. Vataja Shula;

b. Parinama Shula;

c. Annadrava Shula;

d. Amaja Shula

*Answer:* (c)

**4. Sankhya Samprapti of Shula as per Madhavakara is**

a. 3; b. 5;

c. 7; d. 8

*Answer:* (d)

**5. Anubandhya Dosha involved in the manifestation of Shula is**

a. Vata; b. Pitta;

c. Kapha; d. Vata and Kapha

*Answer:* (a)

**6. Pain increases after the intake of the food in case of**

a. Amashaya Shula;

b. Annadrava Shula;

c. Parshva Shula;

d. Grahani

*Answer:* (b)

**7. Pain relieved after vomiting of Jaratpitta (digestive juice) followed by quick relief can be observed in**

a. Parinama Shula;

b. Annadrava Shula;

c. Kaphaja Shula;

d. Sannipataja Shula

*Answer:* (b)

**8. Relief of pain in Annadrava Shula can be observed immediately after**

a. Taking medicine;

b. Eating;

c. Vomiting;

d. Bending forward

*Answer:* (c)

**9. The Shula manifests during the digestion of food is termed as**

a. Annadrava Shula;

b. Parinama Shula;

c. Vataja Shula;

d. Kaphaja Shula

*Answer:* (b)

**10. The term 'Jirne Jiryatyajirne Va' is associated with which of the following?**

a. Vataja Shula;

b. Parinama Shula;

c. Annadrava Shula;

d. Kaphaja Shula

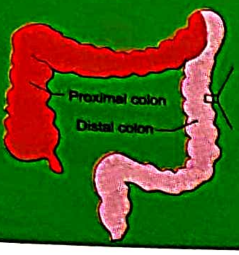
*Answer:* (c)

**Chapter resources**

- Madhava Nidana 26th chapter – Shula Nidana
- Sushruta Samhita Uttara Tantra 42nd chapter Gulma Pratishedha Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.pubmed.com

***

# CHAPTER 5



# Atisara and Pravahika

## Learning Objectives

**Atisara**

- ⇨ To learn the concept of Atisara
- ⇨ To know about the Pratyatma Lakshana of Atisara and Pravahika
- ⇨ To learn the Nidana Panchaka of Atisara described in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of disease
- ⇨ To describe Sadhyasadhyata of Atisara with current understanding from western physiology point of view
- ⇨ To describe Nivritta Atisara/ Vigata Atisara Lakshana along with western physiological understanding
- ⇨ To describe the Samprapti of Pravahika
- ⇨ To differentiate between Atisara and Pravahika
- ⇨ To differentiate Doshaja Atisara

**Pravahika**

- ⇨ To learn the concept of Pravahika
- ⇨ To learn about the Pratyatma Lakshana (cardinal feature) of Pravahika
- ⇨ To learn the Nidana Panchaka of Pravahika mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To learn about Samanya Lakshana and Vishishta Lakshana of Pravahika
- ⇨ To know the difference between Atisara and Pravahika
- ⇨ To learn about Bhayaja, Shokaja and Raktaja Atisara and its current understanding

## Atisara

### Introduction

Excretion is one of the normal physiological function sequentially seen after the process of digestion. It signifies the elimination of waste products which are formed in the large intestine after the absorption of water, electrolytes and other nutrients.

*Atisara* is a spectrum of diseases where in the individual will pass liquid to semi-solid stools with increased frequency.

This occurs when the person is having hypermotility of large intestine, where the reabsorption of water and electrolytes is hampered.

In *Atisara,* usually the person will have *Agnimandy* (loss of appetite) which leads to the excess formation Mala rather than Sara portion from ingested food. Th pathological event is responsible for the manifestation *Atisara.*

This is considered as *Ashukari Vikara* (producing acu manifestation) involving *Purishavaha Srotas.* The type *Srotodushti* involved is *Atipravritti.*

As far as *Dhatu* affliction is concerned, *Rasa Kshaya* observed which can be evident in the form of sunke eyes, loss of skin turgor and altered state of consciousne in case of severe form of the disease manifestation.

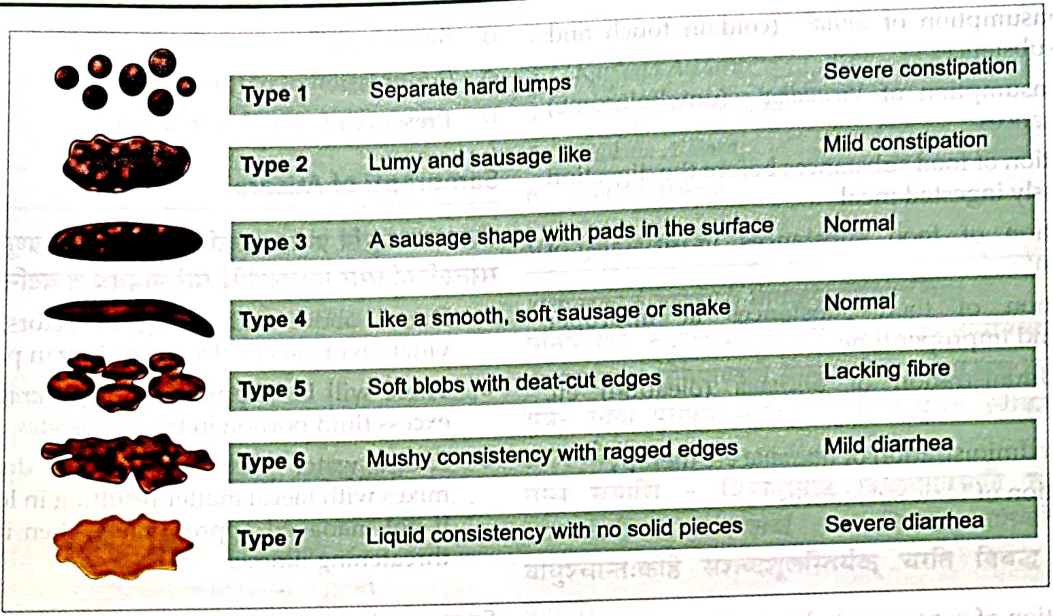

Type 1
Separate hard lumps
Severe constipation
Type 2
Lumy and sausage like
Mild constipation
Type 3
A sausage shape with pads in the surface
Normal
Type 4
Like a smooth, soft sausage or snake
Normal
Type 5
Soft blobs with deat-cut edges
Lacking fibre
Type 6
Mushy consistency with ragged edges
Mild diarrhea
Type 7
Liquid consistency with no solid pieces
Severe diarrhea

**Figure 8:** Bristol stool chart for consistency of faecal matter

## Pratyatma Lakshana of Atisara

गुदेन बहुद्रव- सरणमतिसार इत्यर्थः। Ma.Ni. – 3/4, Madhu

Excess passage of loose or liquid or semi-solid stools through anal orifice is termed as *Atisara*. This is occurring due to the increased peristaltic movement or poor large intestinal obstruction.

## Atisara Nidana

गुर्वतिस्निग्धरुक्षोष्णद्रवस्थूलातिशीतलैः।
विरुद्धाध्यशनाजीर्णैर्विपमैश्चापि भोजनैः॥1॥
स्नेहाद्यैरतियुक्तैश्च मिथ्यायुक्तैर्विषैर्भयैः।
शोकाद्दुष्टाम्बुमद्यातिपानैः सात्म्यर्तुपर्ययैः॥2॥
जलाभिरमणैर्वेगविघातैः क्रिमिदोषतः।
नृणां भवत्यतीसारो लक्षणं तस्य वक्ष्यते॥3॥ Ma.Ni. – 3/1-3

- Excess consumption of *Guru*[1] (substances which are heavy to digest) substances
- Excess consumption of *Atisnigdha*[2] (excessively unctuous) substances
- Excess consumption of *Ruksha*[3] (dry) substances
- Excess consumption of *Ushna*[4] (hot in potency) substances
- Excess consumption of *Drava*[5] (liquid) substances
- Excess consumption of *Sthula*[6] (large in size) substances

---

GK

[1] When an individual consumes Guru substances in more quantity, it takes more time to get complete digestion. When there is more time taken for the digestion to occur, it may result in infection, as most of the Indians are having the carbohydrate rich diet and bacteria proliferate rapidly in such carbohydrate rich diet. This leads to the inflammation of the alimentary canal, thus the person may have rapid peristaltic movements leading to the manifestation of diarrhoea.

[2] When an individual consumes more amount of unctuous substances, that will lead to covering of the intestinal mucosa with unctuous substance and there will be increased peristaltic movements because of its slippery nature. This will lead to the excess movement of liquid or semiliquid stools from the anus. The same thing can occur when an individual is under one of the Purvakarma procedure i.e. Snehapana therapy.

[3] When an individual consumes more amount of Ruksha (dry) substances frequently, this may stimulate excess mucus secretion from surface mucous cells of the stomach. This mucus is very viscus which coats the stomach wall of 1 mm thick and it is alkaline in nature. This will neutralise the hydrochloric acid, and this may further lead to the similar mechanism of formation of Ama (partially digested intermediate molecules coated over the stomach wall, development of infection and inflammation) and thus, the person may have rapid peristaltic movements leading to diarrhoea.

[4] When an individual continuously has the habit of consuming Ushna (hot potent) substances , that may lead to the situation called peristaltic rush. This occurs when there is infection in the small intestine condition such as infectious diarrohea, there will be powerful and rapid peristalsis unlike normal weak and slow peristalsis. This is initiated by nervous reflexes that involve autonomic nervous system and brain stem and partly by intrinsic enhancement of myenteric reflex within the gut wall itself. Thus, the person may suffer from diarrhoea.

[5] Normally, 6.5 to 7 litres of secretions per day is secreted by glands present in the alimentary canal. Another 1.5 litres of fluid will be taken through oral cavity by either water and other fluids. When the fluid intake exceeds 1.5 litres, this may lead to rapid movement of fluid in the alimentary canal leading to the excess fluid in the large intestine. Large intestine can absorb a maximum of 5 to 8 litres of fluid and electrolytes each day. When the fluid exceeds this amount, the person may have semiliquid stool passage.

[6] Here, the substances which are large in size, usually will have heavier weight and they will move slow in the alimentary canal. The mechanism of pathological process will be similar to the mechanism seen in the consumption of Guru substances.

- Excess consumption of *Shita*[7] (cold in touch and potency) substances
- Excess consumption of *Viruddha*[8] (unwholesome) food substances
- Consumption of food substances before the digestion of previously ingested meal
- Consumption of food substances in a state of indigestion[9]
- Consumption of food substances at improper quantity and improper time
- Excess administration of *Snehana* (oleation) etc therapy
- Improper administration of *Snehana* etc therapy[10]
- Consumption of toxic substances[11]
- Fear
- Grief[12]
- Consumption of contaminated water[13]
- Excess alcohol consumption[14]
- Consumption of unwholesome food substances[15]
- Consumption of food substances which are not grown in that particular season[16]
- Swimming[17]
- Suppression of natural urges
- Presence of worm infestation[18]

## Samprapti of Atisara

संशम्यापधातुरग्निं प्रवृद्धः शकुन्मिश्र वायुनाऽधः प्रणुन्नः।
सरत्यतीवातिसारं तमाहुर्व्याधिं घोरं षड्विधं तं वदन्ति॥ Ma.Ni. – 3/4

- Due to above said etiological factors, there will be vitiation of *Vata Dosha, Apana Vata* in particular
- There will be suppression of *Jatharagni* due to the excess fluid portion in the *Mahasrotas.*
- Excess water portion will move downwards and mixes with faecal matter resulting in loose stools and if not managed appropriately, then it will be a life threatening illness.

## Samprapti Ghataka

- **Dosha :** *Vata*
- **Dushya :** *Purisha, Rasa*
- **Srotas :** *Purishavaha Srotas, Rasavaha Srotas*
- **Srotodushti Prakara :** *Atipravritti*

---

GK

[7] The consumption of Shita (cold) substances will lead to vasoconstriction of alimentary canal leading to decreased secretion of digestive juices right from the oral cavity to intestines. This will lead to the macromolecules which are present in the stomach may remain for longer time and thereby the person may develop infection and inflammation of alimentary canal, thus the person may develop diarrohea.

[8] Frequent consumption of Viruddha substances may be responsible for the inflammation of alimentary canal and thus the person may have rapid peristaltic movements and thus the person may develop diarrohea.

[9] When an individual has this type of habit, there will be
1. Newly consumed substances will be present in the centre of the stomach which are more heavier in weight than previously consumed substances.
2. Already consumed substances which are intermediate molecules will move to the periphery of the stomach.
3. Normally, when an individual consumes food, pyloric antrum will close for 2 hours. As the person has taken the substances before the digestion of previously ingested meal, there will be closure of pyloric antrum for another 2 hours. This means the pyloric antrum will close more than 2 hours.
4. Intermediate molecules which are situated in the wall of the stomach, may lead to infection in the alimentary canal and this in turn will lead to the inflammation of stomach.
5. Infective and inflammatory diarrhoea will lead to increased peristaltic movements in the small intestine, thereby protecting the mucosa of the small intestine and this will lead to the increased peristaltic movements in the large intestine and thus leading to diarrhoea.

[10] In this type of aetiological factor, the mechanism of pathological events are similar to excess consumption of Atisnigdha (unctuous substances).

[11] This will lead to the inflammation of the alimentary canal and thus leading to increased peristaltic movements in the stomach, small intestine and large intestine and thus leads to the manifestation of diarrhoea.

[12] This mechanism is called as psychogenic diarrhoea. This is caused by excessive stimulation of parasympathetic nervous system which greatly increases motility and excess secretion in the distal colon. Thus, the person may develop diarrhoea.

[13] Consumption of contaminated water will lead to the infection and inflammation of alimentary canal and this will lead to the increased, rapid and powerful peristaltic movements and thereby the person may have diarrhoea.

[14] Chronic excess alcoholism may lead to either alcoholic gastritis or alcoholic liver disease. When there is alcoholic gastritis, there will be increased, rapid and powerful peristaltic movements in the stomach, small and large intestines leading to the manifestation of diarrhoea. When there is alcoholic liver disease, the person may have portal hypertension which in turn leads to the congestion in the stomach, small and large intestines, thereby the person may develop diarrhoea.

[15] This will lead to the similar mechanism of pathological events seen in the consumption of Viruddha Ahara.

[16] When the person is having to exposure to this type of Nidana, the person may show the pathological events similar to the events occur in case of exposure to Viruddha Ahara consumption.

[17] Excessive swimming may lead to increased peristaltic movements and thereby the person may develop diarrhoea. Another probable hypothesis could be the person may have psychogenic diarrhoea.

[18] This is especially seen in children, specially seen in intestinal parasites or worm infestation. These are associated with uneasy abdominal sensation, night terrors, picking of the nose, itching of the perianal region and vulvo vaginitis

- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Pakvhashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Guda*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Sadhyasadhyata :** *Sadhya* to *Asadhya* depending upon the duration of illness, severity of symptoms

## Purvarupa of Atisara

हुनामिपायूदरकुक्षितोद्गावसादानिलसन्निरोधाः।
बिट्सङ्ग आध्मानमथाविपाको भविष्यतस्तस्य पुरः सराणि॥5॥

Ma.Ni. – 3/5

- Pricking type of pain in the chest region
- Pricking type of pain in the umbilical region
- Pricking type of pain in anal region
- Pricking type of pain in the abdomen
- Pricking type of pain in the epigastric region[19]
- Sluggish movements of the body parts[20]
- Stoppage of movement of *Vata* in the abdomen
- Constipation
- Distension of abdomen
- Impaired digestion[21]

## Sankhya Samprapti of Atisara

### 6 types as per Charaka

1. *Vataja Atisara*
2. *Pittaja Atisara*
3. *Kaphaja Atisara*
4. *Sannipataja Atisara*
5. *Bhayaja Atisara*
6. *Shokaja Atisara*

### 6 types as per Sushruta and Madhavakara

1. *Vataja Atisara*
2. *Pittaja Atisara*
3. *Kaphaja Atisara*
4. *Sannipataja Atisara*
5. *Shokaja Atisara*
6. *Amaja Atisara*

## Vataja Atisara

अथावरकालं वातलस्य वातातपव्यायामातिमा।
त्रनिषेविणो रुक्षाल्पप्रमिताशिनस्तीक्ष्णमद्यव्यवायनित्यस्योदावर्तयतश्च
वेगान् वायुः प्रकोपमापद्यते, पक्का चोपहन्यते स वायुः कुपितोऽझाबुपहते
मूत्र- स्वेदौ पुरीषाशयमुपहत्य, ताभ्यां पुरीषं द्रवीकृत्य, अतीसाराय
प्रकल्पते।

तस्य रूपाणि - विज्जलमामं विप्लुतमवसादि रुक्षं द्रवं सशूल
मामगन्धमीषच्छ ब्दमशब्दं वा विबद्धसूत्रवातमतिसार्यते पुरीपं
वायुश्चान्तःकोष्ठे सशब्दशूलस्तिर्यक् चरति विबद्ध इत्यांमातिसारो
वातात्।

पकं वा विवदमल्याल्प सशब्दं सशूलफेनपिच्छापरिकर्तिकं दृष्टरोमा
विनिःश्वसन् शुष्कमुखः कटयूरुत्रिकजानुपृष्ठपार्श्व शूली भ्रष्टगुदो
मुहुर्मुदुर्विग्रथितमुपवेश्यते पुरीषं वातात्।
तमाडुरनुग्रथितमित्येके, वातानुप्रथितवस्त्वात्॥5॥ Ca.Ci. – 19/5

अरुण फेनिलं रुक्षमल्पमल्पं मुहुर्मुहुः।
शकृदामं सरुक्शब्दं मारुतेनातिसार्यते॥6॥ Ma.Ni. – 3/6

- When a *Vata Prakriti* individual is exposed to wind, sun and physical exercise excessively
- Excess consumption of *Ruksha* (dry) food substances
- Frequently consuming little amount of food
- Consumption of food substances after several time after the appearance of hunger
- Excess consumption of *Tikshna* (irritating) substances such as chillies etc
- Excess consumption of alcoholic beverages
- Excess indulgence in sexual intercourse
- Suppression of natural urges frequently
- By above factors, there will be vitiation of *Vata Dosha* and function of Agni is hampered. This vitiated *Vata* will move *Mutra* and *Sveda* to the *Pakvashaya* leading

---

G K

[19] These clinical features may indicate the ongoing the inflammatory changes happening in the oesophagus, stomach, small intestine, large intestine, rectum and anus.

[20] This is attributable to hyponatremia that may occur as a result of loss of intestinal secretions through the anus to the exterior. This may become lethal within few hours.

[21] When an individual is presented with Purvarupa of Atisara, firstly there will be stoppage of movement of Samana and Apana Vata, both of which may lead to the reduced movement of Vata in the Koshtha resulting in the manifestation of distension of the abdomen secondary to the hampered movement of Vata. As there is affliction of Samana Vata, there will be derangement of Ahara Parinamakara Bhava. The outcome will be impaired digestion.
When an individual consumes food substances which gets stored in the stomach for almost 2 hours. These consumed substances are in the macromolecular form and these substances are heavier in nature. These heavier substances will be moving in the small intestine, lying closer to the intestinal wall, leading to the fullness of the intestine. As these substances reach the large intestine with much delay, the large intestine will be absorbing the water from the rectum, sigmoid and descending colon, leading to the formation of hard stools and this will lead to constipation.
As the person is having more amount of macromolecules in the stomach, small and large intestines and these lie closer to the intestinal wall, secretions from the small and large intestine will not reach the intestine leading to the indigestion state.

to the manifestation of *Vataja Atisara*.

## Lakshana of Vataja Atisara

- In case of *Ama* dominant *Vataja Atisara*, the faecal matter will sink in the water, faecal matter spreads quickly, rough, liquid consistency, painful defaecation with fishy odour, passes with little sound or no sound during defaecation associated with retention of urine and flatus. The retained *Vayu* moves within the abdomen with sound and pain.
- In case of *Pakva Vataja Atisara*, the person will pass hard stool in little quantity with sound and pain. The faecal matter contains froth, slimy in texture, cutting type of pain around anus, horripilation, increased respiration, dryness of mouth, pricking type of in waist, thigh, sacrum, knee, back and sides of the abdomen. The person may have prolapse of rectum. The frequency of passage of liquid stools is higher than all other types of *Atisara* and the nature of faecal matter is unformed.

## Pittaja Atisara

**पित्तलस्य पुनरम्ललवणकटुकक्षारोष्णातीक्ष्णातिमात्रनि- षेविणः**
**प्रतताझिसूर्यसंतापोष्णमारतोपहतगात्रस्य क्रोधेर्ष्याबद्दलस्य पित्तं**
**प्रकोपमापद्यते।**
**तत् प्रकुपितं द्वचत्वादूष्माणमुपहत्य पुरीषाशय- विसृतमौण्ण्याद्**
**द्रवत्वात् सरत्वाच्च भित्त्वा पुरीष- मतिसाराय प्रकल्पते।**
**तस्य रूपाणि-हारिद्रं हरितं नीलं कृष्णं रकेपित्तोपहितमति**
**दुर्गन्धमतिसार्यते पुरीषं, तृष्णादाहस्वेदमूर्च्छाशूलननसंतापपाकपरीत**
**इति पित्तातिसारः॥6॥**

Ca.Ci. – 19/6

**पित्तात्पीतं नीलमालोहितं वा तृष्णामूर्च्छादाहपाकोपपन्नम्।**

Ma.Ni. – 3/7

- Excess intake of *Amla* (sour), *Lavana* (salty) and *Katu* (pungent) *Rasa* substances
- Excess intake of *Kshara* (alkaline) substances
- Excess consumption of *Ushna* (hot in potency) and *Tikshna* (irritating) substances
- Excess exposure to fire e.g. housewives and cooks
- Excess exposure to sunlight e.g. labour workers
- Excess exposure to *Ushna Maruta* (hot air)
- Anger
- Jealousy

Due to increase of *Dravatva* (liquid) in the body, there will be decrease in digestive fire. This decreased fire will enter the *Pakvashaya*, due to its *Ushnatva*, *Dravatva* and *Saratva*, *Pittaja Atisara* will be manifested in the individual.

## Lakshana of Pittaja Atisara

- Yellowish, greenish, bluish or blackish discolouration of liquid or semiliquid faecal matter or blood mixed liquid or semiliquid faecal matter with foul smell
- Thirst
- Burning sensation
- Excess sweating
- Altered state of consciousness
- Pricking type of pain in the abdomen
- Rectal prolapse
- Raised body temperature
- Suppuration

## Kaphaja Atisara

**श्लेष्मलस्य तु गुरुमधुरशीत स्निग्धोपसेविनः संपूरकस्याचिन्तयतो**
**दिवाखमपरस्यालसस्य लेष्मा प्रकोपमापद्यते।**
**स स्वभावाद् गुरुमधुरशीतस्निग्धः स्त्रस्तोऽग्निमुपहत्य सौम्यस्वभावात्**
**पुरीषाशयमुपह- त्योपक्लेद्य पुरीषमतिसाराय कल्पते।**
**तस्य रूपाणिस्निग्धं श्वेतं पिच्छिलं तन्तुमदामं गुरु दुर्गन्धं लेमोप-**
**हितमनुबद्धशूलमल्पाल्पमभीक्ष्णमतिसार्यते सप्रवाहिकं,**
**गुरुदरगुदवस्तिवंक्षणदेशः कृतेऽप्य- कृतसंज्ञः सलोमहर्षः सोत्क्लेशो**
**निद्रालस्यपरीतः सदनोऽन्नद्वेषी चेति श्लेष्मातिसारः॥7॥**

Ca.Ci. – 19/7

**शुक्लं सान्द्रं श्लेष्मणा श्लेष्मयुक्तं विलं शीतं दृष्टरोमा मनुष्यः॥**

Ma.Ni. – 3/7

- In a *Kapha Prakriti* individual, if the person consumes Guru (heavy to digest) substances
- Excess consumption of *Madhura* (sweet) *Rasa* substances
- Excess intake of *Shita* (cold in touch and potency) substances
- Excess intake of *Snigdha* (unctuous) substances
- Excess intake of food in large quantity at a time
- The person who has less mental stressful activities
- The person who indulges in sleeping in day time
- Lazy person

Due to the *Guru*, *Madhura*, *Shita* and *Snigdha* qualities which are opposite to Agni (digestive fire) by nature, the digestive fire will move to *Pakvashaya*, leading to the manifestation of *Kaphaja Atisara*.

## Lakshana of Kaphaja Atisara

- Faecal matter will be unctuous, whitish discolouration, slimy. The faecal matter will be thready in nature. It will sink in water, having foul smell, with the presence of mucus in the faecal matter.
- Pain in the abdomen
- Frequent passage of liquid or semiliquid stools
- Tenesmus
- Heaviness of the abdomen

- Heaviness of the lower abdomen
- Heaviness of the groin region
- The person will have the feeling of urge of defaecation even after passage of stools
- Horripilation
- Nausea
- Excess sleep
- Laziness
- Sluggish movement of body parts
- Aversion to take food

## Sannipataja Atisara

अतिशीतस्निग्धरुक्षोष्णगुरुखरकठिनविषमविरुद्धासात्म्य भोजनादभोजनात् कालातीतभोजनाद् यत्किंचिदभ्यवहरणात् प्रदुष्टमद्यपानीयपानादतिमद्यपानादसंशोधनात् प्रतिकर्मणां विषमगमनादनुपचाराज्वल नादित्यपवन सलिलाति से बनादस्वप्नादतिखनाद्वेगविधारणातुविपर्ययादयथाबलमारम्भाद्भयशोकचित्तोद्वेगातियोगात् कृमिशोषज्वराशौविकारातिकर्षणाद्वा व्यापन्नानेत्रयो दोषाः प्रकुपिता भूय एवाग्निमुपहत्य पक्वाशयमनुप्रविश्यातीसारं सर्वदोषलिङ्गं जनयन्ति॥8॥

Ca.Ci. – 19/8

- Excess intake of cold substances
- Excess intake of unctuous substances
- Excess intake of dry substances
- Excess intake of substances having hot potency
- Excess intake of substances which are heavy to digest
- Excess intake of substances which are rough
- Frequent consumption of food substances at improper quantity and time
- Excess intake of unwholesome food substances
- Excess intake of incompatible food substances
- Frequent fasting
- Consumption of food substances after several hours of appearance of hunger
- Consumption of little amount of food
- Consumption of contaminated water, contaminated alcoholic beverages
- Excess intake of alcoholic beverages
- Improper *Shodhana* (purification or *Panchakarma*) therapy
- Improper administration of treatment
- Improper *Agni Karma* treatment
- Improper exposure to sun
- Excess intake of water
- Avoiding sleep or excess sleep
- Suppression of natural urges
- Not following appropriate measures in different seasons
- Doing activities which cause physical exertion which are not in accordance with one's strength
- Excess mental stress such as fear, grief and anxiety
- *Krimi* (Worm infestation)
- *Shosha* (*Rajayakshma* where excess depletion of all *Dhatu* is seen)
- *Jvara* (fever)
- *Arshas* (hemorrhoids)
- Excess activities which lead to emaciation

All vitiated *Dosha* will reduce *Agni* (digestive fire). This *Agni* will move to *Pakvashaya* leading to the manifestation of *Atisara*.

## Krichrasadhya Sannipataja Atisara Lakshana

अपि च शोणितादीन् धातूनतिप्रकृष्टं दूषयन्तो धातुदोषस्वभावकृतानतीसारवर्णनुपदर्शयन्ति।

तत्र शोणितादिषु धातुष्यतिप्रदुष्टेषु हारिद्रहरितनीलमा- जिष्ठ मांसधावनसन्निकाशं रक्तं कृष्णं श्वेतं वराहभेदः सदृशमनुबद्धवेदनमवेदनं वा समासव्यत्या सादुपवेश्यते शकृद् प्रथितमामं सकृत् सकृदपि पक्कमनतिक्षीणमांसशोणितबलो मन्दाग्निर्विहतमु खरसश्च; तादृशमातुरं कृच्छ्रसाध्यं विद्यात्।

एभि- वर्णैरतिसार्यमाणं सोपद्रवमातुरमसाध्योऽयमिति प्रत्याचक्षीत तद्यथा– पक्कशोणितानं यकृत्खण्डो- पर्म मेदोमांसोदकसन्निकाशं दधिघृतमज्जतैलवसा- क्षीरबेसवाराभमतिनीलम तिरक मतिकृष्णमुदक- मिवाच्छ्रं पुनर्मेचकाभमतिस्निग्धं हरितनीलकषायवर्णे कर्बुरमाविलं पिच्छिलं तन्तुमदामं चन्द्रकोप- गतमति कुणप पूतिपूयगन्ध्यामाममत्स्यगन्धि मेक्षिकुथितबहुधातुस्त्राव मल्पपुरीषमपुरीषं वाऽतिसार्यमाणं तृष्णादाहज्वरभ्रमतम कहि काश्यासानुबन्धमतिवेदनमवेदनं वा त्रस्तपकगुदं पतितगुदवलि मुक्तनालमतिक्षीणवलमांसशोणितं सर्व पर्वास्थिशूलिनमरोचकारतिप्रल ापसंमोहपरीतं सहसोपरत विकारमतिसारिणमचिकित्स्यं विद्यात्।

इति सन्निपातातिसारः॥9॥ Ca.Ci. – 19/9

वराहस्नेहमांसाम्बुसदृशं सर्वरूपिणम्।
कृच्छ्रसाध्यमतीसारं विद्याद्दोषत्रयोद्भवम्॥8॥ Ma.Ni. – 3/8

- Yellowish, greenish, bluish, slight reddish, reddish, blackish, whitish discolouration of faecal matter; faecal matter having the colour of water which is used to clean meat; faecal matter having the colour of fat of pig
- May or may not be associated with pain
- Frequent passage of unformed and formed stools
- Less muscle atrophy and less loss of blood in the body and mild loss of physical strength
- Less digestive fire

## Asadhya Sannipataja Atisara Lakshana[22]

- The stool resembling the colour of cooked blood
- The stool having the colour of liver pieces
- The stool having the colour of meat soup or fat
- The stool having the consistency of curds, ghee, bone marrow, oil, muscle fat, milk, *Vesavara* (a spicy preparation)
- The stool having the colour of dark blue, dark red, dark black or water like clear appearance
- The stool having the colour of *Mechaka* (eye of a peacock's tail)
- Too unctuous faecal matter
- The faecal matter having green, blue or orange colour
- The stool which has *Karbura* appearance (variegated colour or streaked or spotted appearance)
- Turbid appearance of stool
- Slimy appearance of stool
- Thready appearance of stool
- Stool with moony lustre
- Stool with foetid, putrid and cadaverous odour, odour of uncooked fish
- Stool attacked by flies
- Stool containing profused discharge of necrosed tissues
- Stools containing multiple *Dhatu* in it
- Passage of little or no faecal matter
- Thirst
- Burning sensation
- Fever
- Giddiness
- Darkness in front of the eyes
- Hiccups
- Breathing discomfort
- Associated with severe pain or no pain at all
- Prolapse of rectum or suppuration at rectum
- Too physically weak individual
- Too muscle atrophy
- Too little blood in the body
- Multiple joint pain and pain in bones
- Tastelessness
- Irrelevant and incomprehensible speech
- Confusion

## Bhayaja and Shokaja Atisara

**आगन्तु द्वावतीसारौ मानसौ भयशोकजौ।**
**ततयोर्लक्षणं वायोर्यदतीसारलक्षणम्॥11॥** Ca.Ci. – 19/11

- As per *Charaka*, *Bhayaja* and *Shokaja*[23] *Atisara* are *Agantuja* as far as the cause of *Atisara* is concerned.
- These are considered as *Manasika Vikara*.
- The *Lakshana* of these types of *Atisara* are similar to *Vataja Atisara*.

## Shokaja Atisara

**तैस्तैर्भावैः शोचतोऽल्पाशनस्य वाष्पोष्मा वै वह्निमाविश्य जन्तोः।**
**कोष्ठं गत्वा क्षोभयेत्तस्य रक्तं तच्चाधस्तात्काकणन्ती-प्रकाशम्॥9॥**
**निर्गच्छेद्वै विविमिश्रं ह्यविड्वा निर्गन्धं वा गन्धवद्वाऽतिसारः।**
**शोकोत्पन्नो दुश्चिकित्स्यो ऽतिमात्रं रोगो वैद्यैः कष्ट एषप्रदिष्टः॥10॥**
Ma.Ni. – 3/9,10

- The person who is having serious mental stress and who consumes very little amount of food or consumes food with grief, vitiated *Dosha* will reach the abdomen and decrease the *Agni* of the individual.
- Person will pass the stools mixed with blood which simulates the colour of *Gunja*.
- The person passes the faeces mixed with blood associated with or without foul smell, passes with difficulty.
- This type of *Atisara* is very difficult to manage in most of the occasions and has been treated as major trouble by most of the clinicians.

## Amaja Atisara

**अन्नाजीर्णात्प्रद्रुताः क्षोभयन्तः कोष्ठं दोषा धातुसंघान्मलांश्च।**
**शूलोपेतं षष्ठमेनं वदन्ति॥11॥** Ma.Ni. – 3/11

- *Dosha* excited by the presence of *Ama* in the body leads to the vitiation of *Dosha*. These vitiated *Dosha* will enter the *Koshtha* (alimentary canal).
- The person will pass the faecal matter having multiple colours and all these different colours are not seen in one frequency of bowel movement.
- This is associated with severe abdominal pain.

## Raktaja Atisara

**पित्तकृन्ति यदाऽत्यर्थं द्रव्याण्यश्नाति पैत्तिके।**
**तदोपजायते ऽभीक्ष्णं रक्तातीसार उल्वणः॥20॥** Ma.Ni. – 3/20

The main feature of this type of *Atisara* is the appearance of the blood in the liquid or semisolid stools.

---

G K

[22] Refer the Asadhya Lakshana of Atisara described later in the chapter

[23] The terms Bhaya (fear) and Shoka (grief) are considered as emotional disturbances. As per western physiology, there will be extreme activation of parasympathetic nervous system in case of extreme emotional disturbances. Extreme activation of parasympathetic nervous system is responsible for excess secretion of mucus in the large intestine by the mucous cells of the large intestine. The frequency will be increased as rapd as every 30 minutes.

- The causes of this type of *Atisara* is excess intake of the substances *Pitta* vitiating diet for a longer period of time.

## Samatva and Niramatva of Atisara

संसृष्टमेभिर्दोषैस्तु न्यस्तमप्स्ववसीदति।
पुरीषं भृशदुर्गन्धि पिच्छिलं चामसंशितम्॥12॥
एतान्येव तु लिङ्गानि विपरीतानि यस्य वै।
लाघवं च विशेषेण तस्य पक्वं विनिर्दिशेत्॥13॥ Ma.Ni. – 3/12,13

## Sama Atisara Lakshana

- When the vitiated *Dosha* mixed with faecal matter associated with *Ama*[24] will have following features.
- The faecal matter will sink in water, indicates the *Gurutva*[25] of the faecal matter
- Very foul smelling[26]
- Slimy nature[27]

## Nirama Atisara Lakshana

- The faecal matter will float in the water[28].
- The faecal matter will not have foul smell and non slimy in nature[29].

## Asadhya Lakshana of Atisara

पकजाम्बवसंकाशं यकृत्खण्डनिभं तनु।
घृततैलबसामज्जवेशबापरयोदधि॥14॥
मांसधावनतोयानं कृष्णं नीलारुणप्रभम्।
मेचकं स्निग्धकर्पूरं चन्द्रकोपगतं धनम्॥15॥
कुणपं मस्तुलुङ्गाभं सुगन्धि कुथितं बहु।
तृष्णादाहतमः श्वासहिकापावस्थिशूलिनम्॥16॥
संमूर्च्छारतिसंमोहयुक्तं पचबलीगुदम्।
प्रलापयुक्तं च भिषग्बर्जयेदतिसारिणम्॥17॥
असंवृतगुदं क्षीणं दूराध्मातमुपड्रुतम्।
गुदे पक्के गतोष्माणमतिसारकिणं त्यजेत्॥18॥
श्वासशूलपिपासात क्षीणं ज्वरनिपीडितम्।
विशेषेण नरं वृद्धमतीसारो विनाशयेत्॥19॥ Ma.Ni. – 3/14-19

- The colour of faecal matter resembles the colour of ripened *Jambu Phala*[30]
- The colour resembles the colour of piece of liver[28]
- The consistency of faecal matter is thin[31]
- The faecal matter resembles the ghee, oil, muscle fat, bone marrow, *Veshavara* (a spicy preparation prepared with meat), milk or curds, or colour of water used to wash meat, blackish discolouration, bluish or reddish discolouration[32]

---

[24] This is usually associated with the presence of macromolecules in the faecal matter due to the hampered alimentary canal secretions.

[25] When the ingested food substances which are macromolecular in nature will enter into the small intestine without proper digestion i.e. they will enter in the macromolecular form. Even in the small and large intestines, these macromolecules will move to the exterior in the same fashion owing to lack of secretions in the alimentary canal. These are heavier than the water present in the exterior. Thus, in case of Sama Atisara, we can find the sinking of faecal matter in the lavatory. This indicates Samatva of Purisha.

[26] This is indicative of the presence of excess gas formation (methane and hydrogen sulphide in particular) in the large intestine due to the action of colonic bacteria on the unabsorbed carbohydrates in the large intestine. Certain food substances such as beans, cabbage, onion, cauliflower, corn and some irritants such as vinegar which act as suitable medium for the increased gas formation in the large intestine. In most of the occasions, excess expulsion of gases results from rapid peristaltic movement in the large intestine.

[27] Slimy nature of the faecal matter is attributable to the presence of excess mucus in the large intestine. Large intestine contains no villi like small intestine and epithelial cells contain no enzymes, hence no digestion takes place in the large intestine, only absorption of micronutrients such as electrolytes, water may occur in the large intestine. Consumption of any irritating substances if enters into the large intestine, it may lead to excess mucus secretion and the faecal matter will have more slimy consistency.

[28] Normally, when a substance enters ileocaecal junction, it may take one to two days for its travel from caecum to sigmoid colon. Nearly about 1200 ml of fluid enters the caecum and 100 ml of fluid portion will move further to the rectum. This indicates the absorption of > 90% of water takes place normally. There will be absence of macromolecules which enter into the large intestine indicating the complete digestion and assimilation of micronutrients happening in the small intestine. Hence the person will have passage of lighter faecal matter leading to the floating of the faecal matter in the water.

[29] When there is proper digestion and assimilation of carbohydrates is occurring, colonic bacteria will get less carbohydrates for the production of methane and hydrogen sulphide. Hence, the person will not have foul smell in the faecal matter during defaecation. Non slimy nature of faecal matter suggests the reduced mucus secretion owing to less irritation of digested substances entering into the large intestine.

[30] The discolouration explained in this context is dark blue or blackish discolouration. When an individual is having diarrhoea with these clinical features, it may indicate the bleeding occurring in the stomach. Because of the formation of acid haematin in the stomach due to the mixture of hydrochloric acid with blood in the stomach gives the dark blue or blackish discolouration to the faecal matter. This may indicate the seriousness of the situation.

[31] Thin consistency of faecal matter indicates improper absorption of water from the large intestine. Normally, 1,000 to 1,200 ml of the chyme pass through ileocaecal junction each day and nearly about less than 100 ml will be expelled through anal orifice. This leads to the loss of sodium ions too along with water from the large intestine. 30 gms of sodium are secreted into the intestinal secretions by the body and nearly 5 to 8 gms of sodium is eaten by normal individual. To prevent the sodium loss from the body, the intestine has to absorb 25 to 35 gms of sodium each day. Thin consistency implies that the sodium along with water loss is inferred. If this situation is not corrected, within hours, the condition may be fatal.

[32] The colour resembling ghee, oil, muscle fat, bone marrow or Veshavara indicates the yellowish appearance of faecal matter. For example in case of steatorrhoea, the person may have fat indigestion.

- The colour resembling milk or curds indicates the infection or inflammation occurring in the large intestine.

- The faecal matter resembles *Mechaka*[33] (eye of a peacock's tail).
- The faecal matter is unctuous.
- The stool which has *Karbura* appearance[34] (variegated colour or streaked or spotted appearance).
- The faecal matter resembles appearance of moon.
- The smell of faecal matter resembles foetid[35] smell or smell of brain or cadaverous smell[36].
- The condition is associated with thirst, burning sensation, darkness in front of the eyes, breathing discomfort, hiccups, pain in the sides of the chest and bones, altered state of consciousness, restlessness, suppuration in the rectum[37].
- If the person is having extreme loss of physical Strength[38], distension of the abdomen[39], associated with *Upadrava*[40] (complication).
- If there is *Pakvata*[41] (suppuration in rectum) associated with loss of appetite, breathing discomfort, pain abdomen, thirst, extreme loss of physical strength, fever.
- Passage of faecal matter, flatus and urine without any sound[42]
- Proper digestive fire[43]
- Lightness of the alimentary canal[44]

## Atisara Mukta Lakshana

यस्योच्चारं विना मूत्रं सम्यग्वायुश्च गच्छति।
दीप्ताग्नेर्लघुकोष्ठस्य स्थितस्तस्योदरामयः॥23॥ Ma.Ni. – 3/23

The following features indicate the restoration of the function of *Apana Vata* in the patient of *Atisara*.

## Differential diagnosis of Atisara as per Madhukosha commentary:

एवं स्नेहाजीर्णविसूचिकाविषार्शः क्रिमिप्रभृतिर

Madhu, Ma.Ni. – 3/20

*Sneha Ajirna* (appearance of liquid stools after the

---

**GK**

- The colour resembling colour of water used to wash meat will be slight reddish discolouration. This may be observed in case of slight bleeding observed in the small or large intestine. in case of beetroot consumption too, the person may have reddish discolouration.
- Black or dark bluish discolouration may indicate either bleeding observed in the upper alimentary canal.

33 This colour is observed when there is presence of oil or fat in the faecal matter. This indicates the person is having the poor absorption in the small and large intestine.

34 Variegated colour indicates the presence of oil or unctuous substances in the faecal matter. This indicates steatorrhoea. Spotted appearance indicates the unformed stools. When an individual has continuous unformed stools indicates profound water and electrolytes loss which further suggests hypovolemia.

35 This is occurring due to the colonic bacterial action on the food residues entering the large intestine. These are responsible for the production of carbon dioxide, hydrogen and methane. These are formed depending upon the person's colonic bacterial flora and on the type of food consumed. Foetid smell or cadaveric smell is produced due to the excess formation of hydrogen sulphide.

36 This may indicate the presence of methane and hydrogen sulphide. This is attributable to the colonic bacterial action on undigested carbohydrates entering into the large intestine. This is indicative of inflammation which leads to irritation of the large intestine, and the person will have less time for the absorption of water and electrolytes from the large intestinal mucosa.

37 These symptoms can be attributable to either hypovolemia or electrolyte imbalances or abdominal muscle cramps etc.

38 When an individual is presented with Atisara along with extreme loss of physical strength, this is most commonly attributable to profound electrolyte loss occurring through diarrhoea, sodium ions loss in particular and profound water loss from the body. It is being said that normal sodium absorption will be around 25 to 35 gms per day. Normally, around 20 to 30 gms of sodium is secreted in the alimentary canal through different digestive secretions and around 5 to 8 gms of sodium is ingested through oral cavity. Around 0.5% of the intestinal sodium is lost in the faeces everyday. Sodium loss in diarrhoea can be lethal within hours because, for every skeletal muscular activity, smooth muscular activity, cardiac muscular activity, neurotransmission require adequate amount of sodium. In the absence of sodium, the person may have compromise in all these kinds of activities.

39 This can be attributable to either perforation or acute abdomen which may lead to paralytic ileus.

40 शोथं शूलं ज्वरं तृष्णां श्वासं कासमरोचकम्। च्छर्दिं मूर्च्छां च हिक्का च दृष्ट्वाऽतीसारिणं त्यजेत्॥ Madhu, Ma.Ni. – 3/14-19
Swelling, pain, fever, thirst, breathlessness, cough, tastelessness, vomiting, altered state of consciousness, hiccups are the Upadrava of Atisara as mentioned by Madhukosha commentary of Madhava Nidana in the context of Atisara

41 When an individual is having pus discharge through anus, it indicates either fistula in ano or anorectal abscess or carcinoma of rectum or ulcerative colitis. Most of the occasions, the person will avoid urge of defaecation owing to pain developed after defaecation.

42 When an individual presents with above said symptom indicates the proper absorption of water and gases. Normally, large intestine can absorb 5 to 8 litres of water. When one considers about the gas formation, 7 to 10 litres of gases are formed in the large intestine and only 0.6 litres of gases are expelled out through anus. The abundance in water and gases in the faecal matter suffering from diarrhoea is the reason for the production of sound during defaecation. When the individual is passing stools in the absence of sound indicates the absorption of water as well as gases from large intestine.

43 When an individual is presented with appearance of proper appetite at proper time indicates the restoration of function of alimentary canal i.e. reabsorption of fluid and gases from large intestine. This indirectly implies decrease of increased peristaltic movements in the alimentary canal. This mechanism also affects the proximal part of the alimentary canal including small intestine and stomach. This implies retention of water, electrolytes such as sodium and potassium too.

44 Lightness of the alimentary canal indicates the reabsorption of water and nutrients from the alimentary canal. It implies the proper transformation of macro molecules into micromolecules in the small intestine and large intestine. Both of these mechanisms are responsible for the appearance of feeling of the lightness of the alimentary tract by an ailing individual.

consumption of *Sneha* (ghee or oil in the form of *Snehapana*); *Visuchika* (excess upward and downward movement of morbid *Dosha* associated with pricking type of pain all over the body); *Visha* (consumption of toxic substances); *Krimi* (presence of helminths in the body).

Each of the diseases can be differentiated from each other by identifying the presence or absence of associated features along with liquid stools.

## Pravahika

### Introduction

*Pravahika* **(see Figure 9)** is a spectrum of diseases related to *Mahasrotas*. Primary *Dosha* involved in the manifestation of the disease is vitiated *Vata*.

It is associated with the presence of *Kapha* (mucus) in the faecal matter. It is also termed as *Visramsi* by *Bhoja*, as *Antargranthi* by *Parashara* and *Nischaraka* by *Harita*. Large intestine is one such organ which produces large amount of mucus.

The peculiarity of large intestine is it contains many crypts of *Lieberkuhn* like small intestine, but it does not contain villi. The epithelial cells contain almost no enzymes.

This mucus contains moderate amounts of bicarbonate ions secreted by a few non-mucus secreting epithelial cells.

The rate of secretion of mucus is determined by direct, tactile stimulation of epithelial cells lining the large intestine and by local nervous reflexes.

During extreme stimulation of parasympathetic nervous system such as emotional disturbances, much amount of mucus is secreted by large intestine, so that increased movement of ropy mucus is passed through anus, but with no faecal matter. The time period of two movements of bowels is 30 minutes.

भोजादौ लियं विस्त्रंसीति नाम्ना पठ्यते,
पराशरे खन्तमेन्थि रिति, हारीतस्तु निश्वारकाख्यामेतां पठति।

Madhu, Ma.Ni. – 3/21

वायुः प्रवृद्धो निचितं बलासं नुदत्यधस्तादहिताशनस्य।
प्रवाहतोऽल्पं बहुशो महाकं प्रवाहिकां तां प्रवदन्ति तज्ज्ञाः॥21॥

Ma.Ni. – 3/21

- *Ahitashana*[45] (improper dietary pattern) is the main cause of the disease *Pravahika.*
- Vitiated *Vata* is the main cause for the manifestation of the disease.
- This vitiated *Vata* will be responsible for the downward movement of accumulated *Kapha.*
- The person will have less *Pravahana* (tenesmus)[46] and person will pass large amount of faecal matter mixed with mucus.

## Samprapti Ghataka

- **Dosha :** *Vata* along with *Kapha*

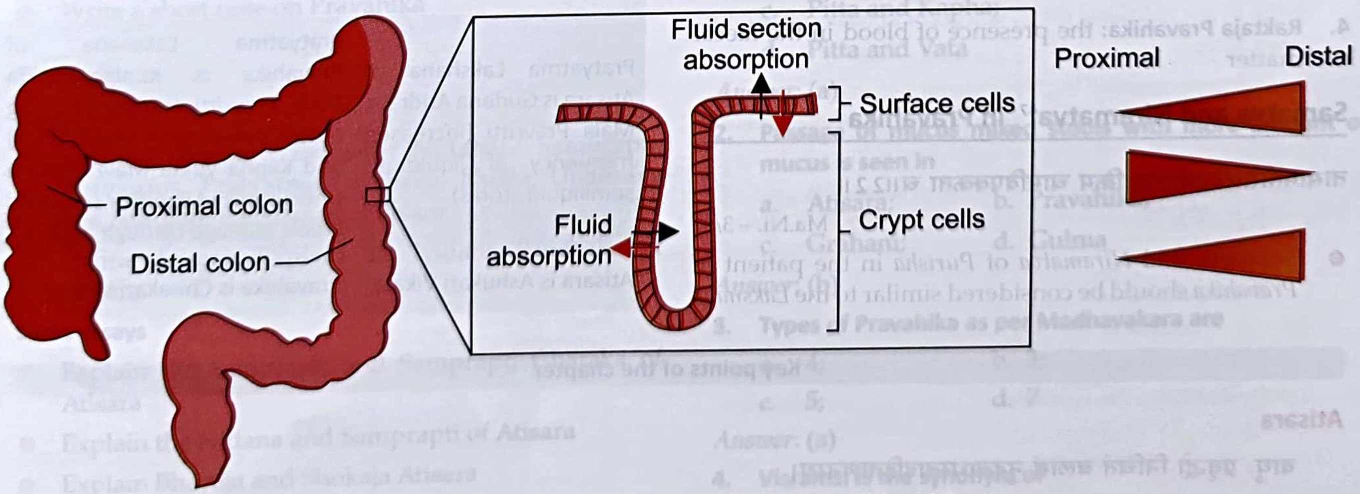


**Figure 9:** Pratyatma Lakshana and Samprapti of Pravahika

---

**GK**

[45] The term improper diet pattern indicates the excess Pitta vitiating diet pattern. The substances which are having the qualities of Ushna, Tikshna, Laghu guna which increase the Tejo Mahabhuta is responsible for the vitiation of Pitta Dosha in the body, in the alimentary canal at the beginning.
Most of the acid containing the food substances are responsible for the increased peristaltic activity which in turn enters into the large intestine, leads to the excess secretion of mucus.
During extreme parasympathetic nervous stimulation such as emotional disturbances, much mucus is secreted and the person will have bowel movement of ropy mucus as often as every 30 minutes, which contains little or no faecal material.

[46] The term tenesmus refers to continual or recurrent inclination to evacuate the bowels. This symptom is usually caused by disorder of rectum.

- **Dushya:** *Purisha, Rasa*
- **Srotas:** *Purishavaha* and *Rasavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya Ama*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana :** *Sarva Sharaira* (as *Rasa Dhatu* affliction is seen)
- **Vyakta Sthana :** *Guda*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhi Svabhava :** *Ashukari*
- **Sadhyasadhyata:** *Sadhya* to *Krichrasadhya* depending upon the duration and severity of symptoms

## Types of Pravahika

प्रवाहिका वातकृता सशूला पित्तात्सदाहा सकफा कफाच।
सशोणिता शोणितसंभवा च ताः स्नेहरूक्षप्रभवा मतास्तु।

Ma.Ni. – 3/21,22

### 4 types of Pravahika:

1. **Vataja Pravahika:** pricking type of pain
2. **Pittaja Pravahika:** burning sensation during defaecation
3. **Kaphaja Pravahika:** presence of mucus in the faecal matter
4. **Raktaja Pravahika:** the presence of blood in the faecal matter

## Samatva and Niramatva[47] in Pravahika

तासामतीसारवदादिशेष क्रिम चामविपक्कता च॥22॥

Ma.Ni. – 3/22

- *Saamatva* and *Niramatva* of *Purisha* in the patient of *Pravahika* should be considered similar to the *Laksnana* mentioned in the context of *Saamatva* and *Niramatva* of *Purisha* in the patient of *Atisara*.

संसृष्टमेभिर्दोषैस्तु न्यस्तमप्स्ववसीदति।
पुरीषं भृशदुर्गन्धि पिच्छिलं चामसंज्ञितम्॥12॥
एतान्येव तु लिङ्गानि विपरीतानि यस्य वै।
लाघवं च विशेषेण तस्य पक्कं विनिर्दिशेत्॥13॥

Ma.Ni. – 3/12,13

- **Saamatva of Purisha in Pravahika:** the person will have unformed stools which will sink in water when we put the faecal matter to the water, foul smell, slimy consistency
- **Niramatva of Purisha in Pravahika:** the person will not be suffering from unformed stools and that will not sink in water, in stead, it will float in the water. The faecal matter will not have foul smell and consistency will not be slimy.

### Difference between Atisara and Pravahika:

| Atisara | Pravahika |
|---|---|
| Atisara primarily involves Purishavaha Srotas followed by Rasavaha Srotas affliction | Pravahika primarily involves Purishavaha Srotas |
| Short duration of the illness is the hallmark of this disease | Long duration of the illness is the hallmark of this disease |
| Pratyatma Lakshana of Atisara is Gudena Atidrava Mala Pravritti (increased frequency of liquid to semiliquid stools) | Pratyatma Lakshana of Pravahika is Kunthanayukta Mala Pravritti (excess straining during defaecation or tenesmus) and Kapha yukta Mala Pravritti (mucus mixed liquid or semisolid stools passage through anus) |
| Atisara is Ashukari Vikara | Pravahika is Chirakari Vikara |

### Key points of the chapter

#### Atisara

वायुः प्रवृद्धो निचितं बलासं नुदत्यधस्तादहिताशनस्य।
प्रवाहतोऽल्पं बहुशो मलाक्कं प्रवाहिकां तां प्रवदन्ति तज्ज्ञाः॥29॥ Ma.Ni. – 3/21

- Vata and Kapha Dosha are the main initiating factors for the manifestation of the Pravahika.
- The main cause of Pravahika is Ahitashana (improper diet pattern)
- In this disease, the person will have more strain for defaecation and the amount of faecal matter formed is less but more amount of mucus is expelled to the exterior.
- As far as Sankhya Samprapti of Pravahika is concerned, 4 types of Pravahika are menitioned – Vataja, Pittaja, Kaphaja, Raktaja

---

[47] For samatva and Niramatva assessment of faecal matter in the patients of Pravahika, we have to analyse in a similar fashion as described in Atisara. Refer the same context for this kind of assessment.

### Pravahika

गुदेन बहुद्रव- सरणमतिसार इत्यर्थः। Ma.Ni. – 3/4, Madhu

- Excess amount of passage of either liquid or semisolid stools through anal orifice is termed as Atisara.
- As far as the Ayurveda fundamentals, there will be initially Agnimandya followed by movement of excess liquid substances to the Pakvashaya leading to Apana Vata vitiation resulting in the manifestation of Atisara.
- As far as Sankhya Samprapti of Atisara is concerned, it is of 6 types. As per Charaka, 6 types of Atisara are Vataja, Pittaja, Kaphaja, Sannipataja, Bhayaja and Shokaja, where as Madhavakara has mentioned 6 types of Atisara are Vataja, Pittaja, Kaphaja, Sannipataja, Shokaja, Amaja.
- Vit Sanga (constipation) is a specific type of Purvarupa observed in this disease which will be absent in the full blown manifestation of Atisara.
- When an individual is presented with excess diarrhoea, the person may have profound loss of water from the body leading to hypovolemia, electrolyte imbalances leading to extreme fatigue.

## Probable questions asked in the university examination

### Atisara

**Long essay**

- Long essay question from this chapter point is rare.

**Short essays**

- Explain Pravahika
- Explain the Nidana and Samprapti of Pravahika
- Explain Samprapti and Samprapti Ghataka of Pravahika

**Short answers**

- Define Pravahika
- Enumerate the types of Pravahika
- Write a short note on Pravahika

### Pravahika

**Long essay**

- Define Atisara. Explain Nidana, Samprapti, Purvarupa, Pratyatma Lakshana, Bheda, Upadrava and Asadhya Lakshana of Atisara.
- Define Atisara. Explain the Nidana Panchaka of Atisara.

**Short essays**

- Explain the Samprapti and Samprapti Ghataka of Atisara
- Explain the Nidana and Samprapti of Atisara
- Explain Bhayaja and Shokaja Atisara
- Explain the types of Atisara
- Explain Asadhya Lakshana of Atisara
- Explain Upadrava of Atisara
- Explain Raktaja Atisara
- Explain Pravahika
- Explain the Nidana and Samprapti of Pravahika
- Explain Samprapti and Samprapti Ghataka of Pravahika

**Short answers**

- Define Atisara
- Write the Purvarupa of Atisara
- Enlist the types of Atisara
- What is Bhayaja Atisara?
- Write a short note on Shokaja Atisara

## MCQs

### Atisara

1. **Dosha responsible for the manifestation of Pravahika is**

    a. Vata and Kapha;
    b. Vata and Pitta;
    c. Pitta and Kapha;
    d. Pitta and Vata

*Answer*: (a)

2. **Passage of mucus mixed stools with more amount of mucus is seen in**

    a. Atisara; b. Pravahika;
    c. Grahani; d. Gulma

*Answer*: (b)

3. **Types of Pravahika as per Madhavakara are**

    a. 4; b. 3;
    c. 5; d. 7

*Answer*: (a)

4. **Visramsi is the synonym of**

    a. Atisara; b. Pravahika;
    c. Gulma; d. Grahani

*Answer*: (b)

5. **Visramsi, Antargranthi, Nischaraka are the synonyms of**

    a. Grahani; b. Atisara;
    c. Gulma; d. Pravahika

*Answer*: (d)

## Pravahika

1. **Sankhya Samprapti of Atisara as per Charaka**
   a. 4; b. 6;
   c. 8; 3

*Answer*: (b)

2. **Dosha dominance observed in the manifestation of Bhayaja Atisara is**
   a. Vata; b. Pitta;
   c. Kapha; d. Rakta

*Answer*: (a)

3. **The description of Amaja Atisara is the contribution of**
   a. Sushruta; b. Madhavakara;
   c. Both a and b; d. Charaka

*Answer*: (c)

4. **The type of Srotodushti occurring in the manifestation of Atisara is**
   a. Atipravritti;
   b. Sanga and Vimargagamana;
   c. Siragranthi;
   d. Sanga only

*Answer*: (a)

5. **Atipravritti is the type of Srotodushti observed in**
   a. Atisara; b. Prameha;
   c. Asrigdara; d. All of the above

*Answer*: (d)

6. **Which of the following effect will occur in water regarding Pakva Mala?**
   a. Properly mixes; b. Sinks;
   c. Floats; d. Foams

*Answer*: (c)

7. **Which of the following is the cause of Atisara in general?**
   a. Rasa Kshaya;
   b. Rakta Vriddhi;
   c. Svedavarodha;
   d. Atyambupana

*Answer*: (d)

8. **Varcho Bheda is the synonym of which of the following?**
   a. Atisara; b. Kamala;
   c. Visuchika; d. Pravahika

*Answer*: (a)

9. **Typical rice water stools is seen in which of the following?**
   a. Cholera; b. Food poisoning;
   c. Cholitis; d. Gastritis

*Answer*: (a)

10. **Dosha responsible for the manifestation of Pravahika is**
   a. Vata and Kapha;
   b. Vata and Pitta;
   c. Pitta and Kapha;
   d. Pitta and Vata

*Answer*: (a)

11. **Passage of mucus mixed stools with more amount of mucus is seen in**
   a. Atisara; b. Pravahika;
   c. Grahani; d. Gulma

*Answer*: (b)

12. **Types of Pravahika as per Madhavakara are**
   a. 4; b. 3;
   c. 5; d. 7

*Answer*: (a)

13. **Visramsi is the synonym of**
   a. Atisara; b. Pravahika;
   c. Gulma; d. Grahani

*Answer*: (b)

14. **Visramsi, Antargranthi, Nischaraka are the synonyms of**
   a. Grahani; b. Atisara;
   c. Gulma; d. Pravahika

*Answer*: (d)

### Chapter resources

- Charaka Samhita, Chikitsa Sthana – 19th chapter: Atisara Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra – 40th chapter: Atisara Pratishedha Adhyaya
- Madhava Nidana, 3rd chapter: Atisara Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- A manual on clinical surgery by S Das, 4th edition, published by Dr S Das, Calcutta, 1998
- Madhava Nidana – 3rd chapter: Atisara Nidana for Pravahika

***

CHAPTER

6

# Grahani

## Learning Objectives

- ⇨ To learn the concept of Grahani
- ⇨ To learn about the Pratyatma Lakshana (cardinal feature) of Grahani
- ⇨ To learn the Nidana Panchaka and Samprapti of Grahani mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To learn about the Purvarupa of Grahani
- ⇨ To know about the description of Sangraha Grahani and Ghatiyantra Grahani as per Madhva Nidana
- ⇨ To describe Sadhyasadhyata of Grahani as per Madhavakara with the view of understanding from western physiology
- ⇨ To differentiate Grahani and Atisara
- ⇨ To know about Doshaja Atisara
- ⇨ To know the differences between Grahani Dosha and Grahani Roga

## Introduction

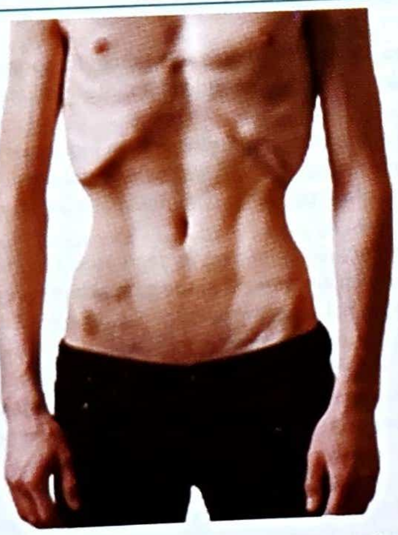


Figure 10: Pratyatma Lakshana of Grahani

*Grahani*[1] is the spectrum of diseases involving *Annavaha Srotas*. This is a *Chirakari Vikara* or long standing disease. Cardinal feature of this disease is abnormal formation of faecal matter which may range from unformed to formed stools, painful to painless defaecation, constipation to liquid stools, very less amount to large amount of stools, but the difference lies in variation in consistency of each frequency of defaecation. Profound weight loss is another major hallmark of the disease. *Grahani* is considered to be one of the *Ashtamahagada* as mentioned by *Vagbhata*. When an individual[2] is presented with chronic duration of unformed stools, it will lead to nutrition deficiency. There will be sequential depletion of carbohydrates, fats and proteins along with hampered absorption of vitamins, minerals.

## Pratyatma Lakshana of Grahani

सा दुष्टा बहुशो भुक्तमाममेव विमुञ्चति॥2॥

---

[1] **Figure 10:** Pratyatma Lakshana of Grahani

[2] When we talk about human body as 100%, 66% (2/3rd) of the human body is made up of water portion and rest (1/3rd) of the portion is made up of solid portion. Among the solid portion of the human body, 3/4th of the human body is made up of proteins. When an individual is having prolonged disturbances in the absorption of nutrients, there will be protein deficiency in the body. This will lead to the deficiency of the enzymes in the alimentary canal as well as enzymes of cells. There will be even deficiency of hormones too. Thus, the person who has prolonged digestive impairment, the person will have emaciation of the body along with passage of unformed stools.

पक्वं वा सरुजं पूति मुहुर्बद्धं मुहुर्द्रवम्। Ma.Ni. – 4/2-3

Cardinal feature of *Grahani* is *Bahu Mala Pravritti* (large amount of liquid stools) or *Ama* (unformed stools) or *Pakva* (formed stools) or *Saruja* (painful defaecation) or *Puti* (presence of pus in the faecal matter) or *Baddha* (constipation) or *Drava Mala Pravritti* (liquid or semiliquid stools). When a person is suffering from *Grahani*, he may have passage of abnormal forms of stools in one frequency. He may not have consistent pattern of one particular character of faecal matter.

## Nidana of Grahani

अभोजनादजीर्णातिभोजनाद्विषमाशनात्।
असात्म्यगुरुशीतातिरुक्षसंदुष्टभोजनात्॥42॥
बिरेकवमनस्नेहविभ्रमाद्व्याधिकर्षणात्।
देशकालर्तुवैषम्याद्वेगानां च विधारणात्॥43॥ Ca.Ci. – 15/42-43

- Not taking the food at all or frequent fasting[3]
- Excess consumption of food in a state of indigestion
- Consumption of food at improper time and amount[4]
- Consumption of incompatible food substances[5]
- Consumption of *Guru*[6] (heavy to digest) substances
- Consumption of *Shita*[7] (cold in touch and potency) substances
- Consumption of *Ruksha*[8] (dry) substances
- Consumption of stale foods
- Improper *Panchakarma* treatment and improper post *Panchakarma* measures[9]
- Emaciation of the person due to other preexisting illnesses[10]

---

**GK**

[3] When the person is doing frequent fasting, this is responsible for the appearance of hunger contractions. When the person gets hunger contractions, this will be associated with mild pain in the pit of the stomach, this is termed as hunger pangs. Hunger pangs do not begin until 12 to 24 hours after the last ingestion of food; they reach peak intensity in 3 to 4 days and gradually weaken in succeeding days. This weakening of gastric juice is leading to inactivation of pepsinogen which usually active when the pH is between 1.8 to 3.5. This is the main reason for the digestion and assimilation disturbances in the long run. Further, when the person is doing frequent fasting, it is leading to the depletion of carbohydrate, fat and protein sequentially leading to the emaciation of the body. This occurs due to the atrophy of the gastrointestinal mucosa which leads to the hampered absorption of essential nutrients.

[4] These kinds of abnormal food patterns are responsible for retention of food substances in the stomach for more than 2 hours, sometimes 3 to 3 and ½ hours or even more. Newly consumed food will be in the centre of the stomach and previously ingested meal will move to the periphery towards the stomach wall, leading to the stretching of the stomach. Frequent exposure to these dietary patterns will lead to the infection and inflammation of the stomach, thereby there will be acidic nature formed and this will lead to the damage to the stomach wall and the person will have poor digestive juices secondary to the damage to the gastric wall.

[5] Frequent consumption of these kinds of the substances such as consumption of milk and fish together, consumption of curds at night or consumption of curds after heating or consumption of food substances prepared out of mustard oil in South India etc, there will be inflammation of stomach. When there is inflammation in the stomach, that will lead to two of the following mechanisms:

1. There will be increased secretion from the stomach, which will lead to the dilution of hydrochloric acid. This will lead to the dilution of gastric juice, which leads to inactivation of the pepsinogen into pepsin. This will not lead to transformation of macromolecules into intermediate or micromolecules.
2. Depending upon the type of food intake, such as curds or fish etc, that will lead to stasis of these substances for longer time, this will dilute the gastric juice. In this situation, there will be decreased transformation of macromolecules into intermediate or micromolecules.

[6] The substances which are heavy to digest are will take longer time to get digested in the stomach. Suppose if an individual consumes both lighter and heavier food substances, the substances which are light to digest are digested early and move to the distal portion of alimentary canal early and the substances which are heavy to digest will start moving into the distal part of gastrointestinal tract much slower pace. Thus, we can get a state of indigestion in this situation.

[7] The consumption of Shita (cold) substances will lead to vasoconstriction of alimentary canal leading to decreased secretion of digestive juices right from the oral cavity to intestines. This will lead to the macromolecules which are present in the stomach may remain for longer time and thereby the person may develop infection and inflammation of alimentary canal, thus the person may develop diarrohea.

[8] When an individual consumes more amount of Ruksha (dry) substances frequently, this may stimulate excess mucus secretion from surface mucous cells of the stomach. This mucus is very viscus which coats the stomach wall of 1 mm thick and it is alkaline in nature. This will neutralise the hydrochloric acid, and this may further lead to the similar mechanism of formation of Ama (partially digested intermediate molecules coated over the stomach wall, development of infection and inflammation) and thus, the person may have rapid peristaltic movements leading to diarrhoea.

[9] Improper Panchakarma treatment refers to either increased or decreased purification therapy. Let us take the example of Virechana, the administration of the medicine will lead to the inflammation of small intestine and there will be movement of pathogens present either in intracellular compartment or in interstitial compartment or in intravascular compartment will move to the alimentary canal leading to the expulsion of vitiated Dosha to the exterior. Improper Virechana therapy will lead to the abnormal or hampered movement of pathogens. Improper post Panchakarma procedure indicate the administration of proper Pashchat Karma which may disturb the functioning of Agni leading Agni Dushti for the long time. As the disease becomes chronic, the person may pass the abnormal bowel patterns thus, leading to the manifestation of Grahani.

[10] When an individual is suffering from chronic debilitating illness, then such individuals will have nutrient deficiency such as carbohydrate, fat and protein loss from the body. This kind of frequency will be sequentially observed in the form of carbohydrate, fat and protein depletion. This mechanism occurs as a result of gastronintestinal mucosal atrophy. Thus, the person suffering from Grahani, will have decreased

- Improper measures related to one particular *Desha* such as *Jangala, Anupa* or *Sadharana Desha*. For example, curds intake should be avoided in *Anupa Desha* as there is every possibility of vitiation of *Kapha Dosha* which is an additional factor where *Kapha Dosha* is usually vitiated in *Anupa Desha*
- Improper measures related to one particular *Kala* such as consumption of *Shita Virya* substances in early part of night time. For example, consumption of curds in night time, as there will be vitiation of *Kapha Dosha* on that particular time[11]
- Improper measures related to one particular season such as consumption of *Dadhi* or curds in *Vasanta Rtu*. For example, in winter season, the consumption of curds leads to the vitiation of *Kapha Dosha*
- Suppression[12] of natural urges such as micturition, defaecation etc

## Samprapti of Grahani

दुष्यत्यग्निः, स दुष्टोऽयं न तत् पचति लध्वपि।
अवच्यमानं शुक्तत्वं यात्यन्नं विरूपताम्॥44॥ Ca.Ci. – 15/44

- All above etiological factors will vitiate the *Agni* (digestive fire)
- The substances which are considered to be *Laghu* (light to digest) are not going to get digested due to impaired digestive function
- This indigested or partially digested material will become *Shuktatva* (acidic in nature) and it will be acting like toxic substance.

## Samprapti Ghataka

- **Dosha :** *Pitta*
- **Dushya :** *Rasa*
- **Srotas :** *Annavaha* and *Rasavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya* and *Rasa Dhatvagnimandya*
- **Ama:** *Jatharagnimandyajanya* and *Rasa Dhatvagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana:** *Sarva Sharira* (owing to *Rasa Dhatu* involvement in the progression of the disease)
- **Vyakta Sthana :** *Guda*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhi Svabhava :** *Chirakari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya* based on the duration of symptoms and severity of the illness

## Purvarupa of Grahani

पूर्वरूपं तु तस्येदं तृष्णाऽऽयं बलक्षयः।
विदाहोऽस्य पाकश्च चिरात्कायस्थ गौरवम्॥4॥ Ma.Ni. – 4/4

प्रापं तस्य संदनं चिरात्पचनमम्लकः॥19॥
प्रसेको वक्त्रवैरस्यमरुचिस्तुद्र लमो भ्रमः।
आनद्धोदरता छर्दिः कर्णक्ष्वेडो ऽन्त्रकूजनम्॥20॥
A.Hr.Ni. – 8/19,20

- Thirst[13]
- Laziness[14]
- Poor physical strength[15]

---

nutrient absorption from alimentary canal and the person will have depletion of body tissues from the body tissues. The person will have depletion of Medo Dhatu (adipose tissue owing to conversion of adipose tissue into circulating fat in the intravascular compartment) and the person will be always lean.

[11] These aetiological factors are responsible for the Viruddha (non homologous) effect to the body. Frequent consumption of these substances will be responsible for non homogeneity to the person indulges in such kind of activities.

[12] Let us take the example of Purisha (faecal matter), Mutra (urine) and Adhovata (flatus) Vegadharana. When an individual suppresses these urges, that will abnormally increase the Apanavata in the body, which leads to the reverse movement of Vata in the body. This event will lead to the abnormal increase of Samanavata in the body. Samanavata is considered to be one of the six factors responsible for the proper digestion of food (Ahara Parinamakara Bhava). When Samanavata is disturbed, this may have an impact on Ushma, Kleda, Sneha, Kala and Samayoga of Ahara Parinamakara Bhava, leading to dysfunction of Agni. If the person still does suppression of urges, that may lead to the abnormal functioning of Pranavata (reversal of Pranavata).
Constipation can also result from spasm of a small segment of the sigmoid colon. it should be recalled that motility even normally weak in large intestine, so that even a slight degree of spasm can often capable of causing serious constipation. After the constipation has continued for several days and excess faeces has accumulated above a spastic sigmoid colon, excessive colonic secretions often then lead to a day or so of diarrhoea. After this, teh cycle begins again with repeated bouts of alternating constipation and diarrhoea.

[13] The presence of thirst indicates the shrinking of either intravascular compartment or interstitial compartment or intracellular compartment. This is usually attributable to the poor absorption of water from the alimentary canal. Normally, 7 to 8 litres of fluid is secreted in alimentary canal as gastro intestinal secretions and another 1.5 litres of water is consumed through oral cavity and only about 100 – 200 ml of fluid will be expelled through anus. When an individual passes more liquid to semisolid stools containing more amount of water for a longer duration may be for years may have Grahani manifestation.

[14] Laziness is attributable to the heaviness of the body parts. Heaviness can be observed in the alimentary canal also. Good digestive fire is required for the proper transformation of ingested macromolecular substances to the absorbable micromolecular substances. Macromolecules are heavier and micromolecules are lighter in nature. When an individual is having poor digestive fire, macromolecules are not converted into lighter micromolecules. That is why, the person may have laziness of the abdomen. This may lead to the transport of macromolecules and intermediate molecules into the intravascular compartment via lymphatic system. When these molecules enter the circulatory system, that will lead to the slowness of blood. As the person is having the excess macromolecules into the intravascular, interstitial and intracellular compartments, the person will present with heaviness of body parts.

[15] Grahani is a chronic long-standing illness association with emaciation. Poor physical strength is attributable to poor assimilation of the nu-

- Partial digestion of ingested food
- Delayed digestion of ingested food[16]
- Heaviness of the body[17]

## Samanya Lakshana of Grahani

सामान्यं लक्षणं काश्ये धूमकस्तंमको ज्वरः।
मूर्च्छा शिरोरुग्विष्टम्भः श्वयथुः करपादयोः॥21॥

A.Hr.Ni. – 8/21; A.San. – 8/23

- Emaciation[18]
- Burning sensation as if smoke is coming through mouth[19]
- Darkness in front of the eyes[20]
- Raised body temperature[21]
- Altered state of consciousness[22]
- Headache[23]
- Sluggish movement of the intestines[24]
- Swelling of the hands and feet[25]

## Types of Grahani

4 types as per *Charaka, Laghu Vagbhata* and *Madhavakara*:

1. *Vataja*
2. *Pittaja*
3. *Kaphaja*
4. *Sannipataja*

*Madhavakara* in *Madhava Nidana* has mentioned 2 more variants of *Sannipataja Grahani*. They are *Sangraha Grahani* or *Sangrahani* and *Ghatiyantra Grahani*.

## Vataja Grahani

कटुतिक्तकषायातिरुक्षशीतलभोजनैः।
प्रमितानशनात्यध्यवेगनिग्रहमैथुनैः॥59॥
करोति कुपितो मन्दमग्निं संखाय मारुतेः।
करोति कुपितो मन्दमग्नि संखाय मारुतेः।
तस्यानं पच्यते दुःखं शुकपार्क खराङ्गता॥60॥
कण्ठास्यशोषः श्रुष्णा तिमिरं कर्णयोः खनः।
पायरवणग्रीवारुजोऽभीक्ष्णं विसूचिका॥61॥
इत्पीडा कायदौर्बल्यं वैरस्यं परिकर्तिका।
गुद्धिः सपेरसानां च मनसः सदनं तथा॥62॥
जीर्णे जीर्यति चाध्मानं भुक्ते स्वास्थ्यमुपैति च।
स बातगुल्म होगीहाशङ्की च मानवः॥63॥
चिरादुःखं द्रयं शुष्कं तन्वामं शब्दफेनवत्।
पुनः पुनः सृजेद्वर्चः कासश्वासार्दितोऽनिलात्॥64॥

Ca.Ci. – 15/59-64

- Excess consumption of *Katu* (pungent), *Tikta* (bitter) and *Kashaya* (astringent) *Rasa* substances
- Excess consumption of dry substances
- Excess consumption of cold substances in touch and potency
- Frequent consumption of little amount of food
- Excess walking

---

trients including glucose, sodium, potassium, calcium and water from the small and large intestines and overulitisation of essential nutrients simultaneously. Thus, the person may have poor physical strength.

[16] Grahani is a disease which is long-standing, emaciating illness associated with poor digestive fire. As per Ayurveda fundamentals, poor digestive fire will have other components such as Vayu, Kleda, Sneha, Kala etc. If the person is having disturbances in above said factors either one or two or more factors or all factors, that may lead to either partial digestion or delayed digestion of food.

[17] When an individual is presented with poor digestive fire, it is responsible for the poor nutrients absorption from the alimentary canal. This is responsible for the glucagon and epinephrine secretion from the body. Thus, the person may have transformation of glycogen to glucose for generation of energy. Later, the person will have fat mobilisation. This fat mobilisation will increase in free fatty acids in the circulation and probably this could be the reason for the heaviness of the body parts.

[18] Emaciation is attributable to poor assimilation of nutrients from the intestines. When you speak of nutrients, they are carbohydrates, fats and proteins and other electrolytes and water. When the individual is suffering from Grahani, he will have digestive disturbances of long duration sometimes related to years of duration. Because of poor absorption, the person will have fat depletion and protein depletion in the absence of carbohydrate depletion in the body. This will lead to the manifestation of emaciation in the patient suffering from Grahani.

[19] This is attributable to the formation of Shuktata (acidity) of ingested food owing to the longer stay of ingested food in the Amashaya because of abnormal faulty diet patterns such as Adhyashana or Vishamashana etc. As the food stays for a longer time in the stomach because of pyloric closure and most of the people will take carbohydrate as main diet, there will be bacterial proliferation leading to infection in the stomach. In this state, the person may develop burning sensation in the throat and mouth secondary to the infection and inflammatory reaction occurring in the stomach.

[20] Darkness in front of the eyes and altered state of consciousness are attributable to the syncopal episodes or hypoglycemia or hypovolemia.

[21] This is attributable to the infective or inflammatory mechanism occurring in the stomach.

[22] This is attributable to the hypoglycaemia or electrolyte imbalances manifest due to the poor essential nutrient absorption.

[23] When an individual is suffering from Grahani, two forms of large intestinal dysfunction may occur. They are increased peristaltic movements and decreased peristaltic movements. In case of increased peristaltic movements of large intestine, there will be passage of liquid or semi-solid stools by the patient. When the individual is having reduced peristaltic movements, increased absorption of ammonia occurs from the large intestine. Headache is said to be manifested in an individual when there is excess absorption of ammonia from the large intestine.

[24] This presenting complaint indicates poor digestion of ingested food. Usually, macromolecules are in unabsorbable and heavier in nature and these are not converted into lighter molecules. Thus, the person may have poor sluggish movement of molecules in the intestines.

[25] This is attributable to the poor protein absorption from the small intestine. This will lead to the state called hypoproteinemia in the long run and this will be responsible for the more fluid accumulation in the interstitial compartment leading to the slow pitting type of oedema in the patients suffering from this kind of illness.

- Frequent suppression of natural urges
- Excess sexual intercourse
- Above etiological factors will lead to the poor *Agni* (digestive fire) by abnormal *Vata Dosha*

## Lakshana of Vataja Grahani

- Poor digestion of ingested food
- Partial digestion of ingested food leading to acidification of partially digested food
- Rough body parts
- Dryness of the throat and mouth
- Thirst
- Appetite
- Blurring of vision
- Unnatural sounds in the ears (tinnitus)
- Pain in the sides of the chest, thighs, groins, nape of neck
- *Visuchika* (upward and downward movement of vitiated *Dosha*)
- Discomfort in the chest
- Emaciation
- Physical weakness
- Abnormal taste perception
- Cutting type of pain in the perianal region
- The person suffering from *Grahani* will have desire to take food substances having six *Rasa*
- Sluggish mental activities
- Distension of the abdomen whether the person takes the food or not
- After the consumption of food, the person will have subsidence from the symptoms
- Differential diagnosis for *Vataj Grahani* is *Vataja Gulma, Hridroga* and *Pliha roga*.
- The person will pass the bowels with the characters of liquid consistency, dry in nature, delay in the process of defaecation, presence of *Ama* in the faecal matter, thin faecal matter
- Frequent passage of loose stools
- Associated with cough, breathlessness

## Pittaja Grahani

कडुजी विदाह्यम्लक्षारायैः पित्तमुल्बणम्।
अग्निमालावयन्ति जलं तप्तमिवानलम्॥65॥
सोऽजीर्णे नीलपीताभं पीताभः सार्यते द्रवम्।
नृत्यम्लोद्गारहृत्कण्ठदाहारुचितृडर्दितः॥66॥ Ca.Ci. – 15/65, 66

- Excess consumption of *Katu* (pungent) and *Amla* (sour) *Rasa* substances
- Consumption of food in the state of indigestion
- Excess consumption of *Vidahi* (producing burning sensation and thirst) substances
- Excess consumption of *Kshara* (alkaline) substances
- Due to the above etiological factors, the person will have poor digestive function

## Lakshana of Pittaja Grahani

- Bluish or yellowish or yellow discolouration of liquid to semiliquid stools
- Presence of pus in the liquid to semiliquid stools
- Sour eructations
- Burning sensation in the chest and throat regions
- Tastelessness
- Thirst

## Kaphaja Grahani

गुर्वतिस्निग्धशीतादिभोजनादतिभोजनात्।
भुक्तमात्रस्य च स्वप्नाद्धन्त्यग्निं कुपितः कफः॥67॥
तस्यान्नं पच्यते दुःखं हृल्लासच्छर्धरोचकाः।
आस्योपदेहमाधुर्यकासष्ठीवनपीनसाः॥68॥
हृदयं मन्यते स्त्यानमुदरं स्तिमितं गुरु।
दुष्टो मधुर उद्गारः सदनं स्त्रीष्वहर्षणम्॥69॥
भिन्नामश्लेष्मसंसृष्टगुरुवर्चः प्रवर्तनम्।
अकृशस्यापि दौर्बल्यमालस्यं च कफात्मके॥70॥

Ca.Ci. – 15/66-70

- Excess consumption of Guru (heavy to digest) substances
- Excess consumption of unctuous substances
- Excess consumption of cold substances
- Excess consumption of food substances in excess quantity
- *Kapha Dosha* gets vitiated by above said etiological factors and soon after the consumption of food

## Lakshana of Kaphaja Grahani

- Digestion of food with difficulty
- Nausea
- Vomiting
- Tastelessness
- Coating over the tongue
- Sweetish taste in the mouth
- Cough with sputum
- Running nose
- Heaviness of the chest
- Sensation of the covering of the body with wet cloth

- Heaviness of the body parts
- Sweet taste eructations
- Sluggish movement of body parts
- Aversion towards sexual intercourse
- Unformed stools with the presence of mucus
- Passage of faecal matter which is heavy which will sink in the water
- Considerable amount of physical debility even though the patient is not emaciated
- Laziness

## Sangrahani

( अन्त्रकूजनमालस्यं दौर्बल्यं सदनं तथा।
द्रवं शीतं घनं स्निग्धं सकटीवेदनं शकृत्॥1॥
आमं वहु सपैच्छिल्यं सशब्दं मन्दवेदनम्।
पक्षान्मासाद्दशाहाद्वा नित्यं वाऽप्यथ मुञ्चति॥2॥
दिवा प्रकोपो भवति रात्रौ शान्तिं व्रजेच्च सा।
दुर्विज्ञेया दुश्चिकित्स्या चिरकालानुबन्धिनी॥3॥
सा भवेदामवातेन संग्रहग्रहणी मता। Ma.Ni. – 4/17-1-4

This is the advanced stage of *Sannipataja Grahani.* Following *Lakshana* are observed in the patient of *Sangrahani.*

- Gurgling sound in the abdomen
- Laziness
- Weakness
- Sluggish movement of the body parts
- Pain in the waist region
- Faecal matter associated with liquid to semiliquid stools, cold in touch, heavy, unctuous, unformed, large quantity, slimy character with passage of flatus with sound and mild pain abdomen
- Initially, the worsening of the symptoms occurs in one month. Later the symptom free period reduces 15 days and later to 10 days.
- In severe case, the worsening of the symptoms occurs daily. Peculiarity of the illness is worsening of the symptoms is seen in day time and in night time, the person will not have any symptoms.
- This disease is a chronic lingering disease and it is very difficult to diagnose and to have appropriate management is also very difficult.
- The person will have features of *Saama Vata* during the progression of the illness.

## Ghatiyantra Gra

स्वपतः पार्श्वयोः शूलं गलज्जलघटीध्वनिः।
तं वदन्ति घटीयन्त्रमसाध्यं ग्रहणीगदम्॥4॥ Ma.Ni. – 4/17-4

- In this type of *Grahani,* the person will have presenting complaint of pain in the flanks in lying position
- There will be production of sound similar to the pot with some amount of water inside.
- This is called as *Asadhya* (incurable).

## Samatva and Niramatva in Grahani[26]

दोषं सामं निरामं च विद्यादत्रातिसारवत्॥18॥ Ma.Ni. – 4/18
संसृष्टमेभिर्दोषैस्तु न्यस्तमप्स्ववसीदति।
पुरीषं भृशदुर्गन्धि पिच्छिलं चामसंज्ञितम्॥12॥
एतान्येव तु लिङ्गानि विपरीतानि यस्य वै।
लाघवं च विशेषेण तस्य पक्कं विनिर्दिशेत्॥13॥ Ma.Ni. – 3/12,13

- *Samatva* and *Niramatva* of *Grahani* should be considered similar to the *Lakshana* observed in *Saama* and *Nirama* stage of *Atisara.*

## Sama Atisara Lakshana

- When the vitiated *Dosha* mixed with faecal matter associated with *Ama* will have following features.
- The faecal matter will sink in water, indicates the *Gurutva* of the faecal matter
- Very foul smelling
- Slimy nature

## Nirama Atisara Lakshana

- The faecal matter will float in the water.
- The faecal matter will not have foul smell and non slimy in nature.

## Asadhya Lakshana of Grahani[27]

लिङ्गैरसाध्यो ग्रहणीविकारो यैस्तैरतीसारगदो न सिध्येत्।
वृद्धस्य नूनं ग्रहणीविकारो हत्वा तनुं नैव निवर्तते च॥19॥
( वालके ग्रहणी साध्या यूनि कृच्छ्रा समीरिता।
वृद्धे त्वसाध्या विज्ञेया मतं धन्वन्तरेरिदम्॥1॥) Ma.Ni. – 4/19

- The *Asadhya Lakshana* of *Atisara* should be considered in analysing the *Asadhyata* (incurability) of *Grahani* illness also.
- In elderly individuals, this disease is definitely incurable[28].

---

[26] Samatva and Niramatva of Grahani can also be similar to the clinical features of Samatva and Niramatva of Atisara. The relevance of these Lakshana we have to see in the context of Atisara only. Due to the voluminous content of the textbook, the descriptions are not elaborated in this chapter.

[27] Asadhya Lakshana (incurability) of Grahani are similar to the Lakshana mentioned in the context of Atisara. Therefore, relevance of the Lakshana we have to look in the context of Atisara only.

[28] First of all, there will be extreme tissue depletion (Dhatu Kshaya) secondary to old age is observed as a natural phenomena. When one

- In children, *Grahani* is *Sadhya* (curable)[29]
- In middle age, *Grahani* disease is *Krichrasadhya* (curable with difficulty)

**Difference between Atisara and Grahani:** Both diseases are considered to be responsible for affliction of *Mahasrotas*. There are certain factors which differentiate the two conditions.

| Atisara | Grahani |
|---|---|
| Atisara primarily involves Purishavaha Srotas | Grahani primarily involves Annavaha Srotas |
| Short duration of the illness is the hallmark of this disease | Long duration of the illness is the hallmark of this disease |
| Pratyatma Lakshana of Atisara is Gudena Atidrava Mala Pravritti (increased frequency of liquid to semiliquid stools) | Pratyatma Lakshana of Grahani is Pakva (formed stools) or Ama (unformed stools), Bahu (in large quantity) or Saruja (painful defaecation) or Puti (defaecation with the presence of pus) or Baddha (constipation) or Drava (liquid to semiliquid) Mala Pravritti |
| Profound weight loss is not usually seen in the patient of Atisara | Profound weight loss is usually in the patient of Grahani |
| Atisara is Ashukari Vikara | Grahani is Chirakari Vikara |
| Atisara usually have good prognosis | Grahani usually have poor prognosis |

## Difference between Grahani Dosha and Grahani Roga

| Grahani Dosha | Grahani Roga |
|---|---|
| This is a state prior to Dosha Dushya Sammurchana | This is a state after the Dosha Dushya Sammurchana |
| In this, only abnormal functioning of Agni is seen | In this, not only abnormal functionin of Agni is seen, even the features of Rasa Kshaya etc are also seen |
| Vishamagni, Mandagni and Tikshnagni are the types of Grahani Dosha as per Charaka | Vataja, Pittaja, Kaphaja, Sannipataja are the types of Grahani as per Charaka |
| The duration of Grahani Dosha is usually shorter | The duration of the Grahani Dosha is chronic |
| Based on the concept of cause and effect, Grahani Dosha can lead to the manifestation of Grahani Roga | Grahani Roga may not lead to Grahani Dosha, as Grahani Roga is the effect and Grahani Dosha is a cause |

### Key points of the chapter

**सा दुष्टा बहुशो भुक्तमाममेव विमुञ्चति॥2॥ पक्वं वा सरुजं पूति मुहुर्बद्धं मुहुर्द्रवम्।** Ma.Ni. – 4/2-3

- In the individual who is suffering from Grahani may sometimes pass liquid stools, sometimes he may pass hard stools, sometimes he may pass the stools with pain, sometimes he may pass the stools mixed with pus, sometimes he may pass liquid stools.
- This is a spectrum of diseases afflicting Annavaha Srotas, later afflicting Purishavaha Srotas and Rasavaha Srotas which is a chronic disease associated with profound weight loss and abnormal consistency of faecal matter. In this disease, metabolic disturbances are observed.

**पूर्वरूपं तु तस्येदं तृष्णाऽऽलस्यं वलक्षयः। विदाहोऽन्नस्य पाकश्च चिरात्कायस्य गौरवम्॥4॥** Ma.Ni. – 4/4

- Purvarupa observed during the progression of Grahani are thirst, laziness, loss of strength, improper and delayed digestion of food.

**सामान्यं लक्षणं कार्श्ये धूमकस्तमको ज्वरः। मूर्च्छा शिरोरुग्विष्टम्भः श्वयथुः करपादयोः॥21॥** A.Hr.Ni. – 8/21; A.San. – 8/23

- Emaciation, burning sensation as if the smoke is coming through mouth, darkness in front of the eyes, raised body temperature, altered state of consciousness, headache, reduced peristaltic movements, swelling of the hands and feet are the common general features observed in the patient of Grahani.
- Sankhya Samprapti of Grahani are 4 types as per Charaka: Vataja, Pittaja, Kaphaja and Sannipataja; where as Madhava Nidana has added two more peculiar types of Grahani viz. Sangrahani (Sangraha Grahani) and Ghatiyantra Grahani.
- Nature of Purisha in the patient of Grahani is similar to that of the features of Purisha of Atisara.

---

makes the diagnosis of Grahani, two factors are considered – duration of the illness and cardinal feature of the disease. In other words, the elderly individual suffering from Grahani will have even extreme body tissue depletion. Hence, it is incurable in old age.

[29] In children, there will be improperly formed body tissues. Grahani is a chronic disease. The children will have easy adaptation to the lifestyle changes which may be suggested by the clinician and they respond well to the management. Hence, this is easily curable in children.

## Probable questions asked in the university examinations

### Long essay questions

- Define Grahani, explain Nidana Panchaka of Grahani
- Explain Grahani in detail
- Write Nidana, Purvarupa, Rupa, Pratyatma Lakshana, Bheda and Sadhyasadhyata of Grahani

### Short essay questions

- Explain Sangraha Grahani
- Explain Samanya Lakshana of Grahani
- Explain Sama and Nirama Purisha Lakshana of Grahani
- Describe Vataja Grahani
- Explain Samprapti and Samprapti Ghataka of Grahani
- Explain Asadhya Lakshana of Grahani

### Short answers

- Define Grahani
- Write the difference between Grahani Roga and Grahani Dosha
- Enumerate the types of Grahani as per Madhavakara
- Write the Pratyatma Lakshana of Grahani

### MCQs

**1. Ghatiyantra Grahani is the term described by**

a. Charaka; b. Sushruta;
c. Madhavakara; d. Vagbhata

*Answer*: (c)

**2. Types of Grahani mentioned by Charaka are**

a. 4; b. 5;
c. 6; d. 3

*Answer*: (a)

**3. Which of the following is false in case of Grahani?**

a. Ashukari Vikara;
b. Chirakari Vikara;
c. Abnormal and unstable consistency of faecal matter;
d. Annavaha Srotas affliction

*Answer*: (a)

**4. Srotas afflicted during the progression of Grahani is/are**

a. Annavaha Srotas;
b. Purishavaha Srotas;
c. Rasavaha Srotas;
d. All of the above

*Answer*: (d)

**5. Which of the following type of Grahani is having the features of Saama Vata?**

a. Kaphaja Grahani;
b. Sangrahani;
c. Pittaja Grahani;
d. Ghatiyantra Grahani

*Answer*: (b)

**6. Desire to take all six Rasa substances is seen in which type of Grahani?**

a. Vataja; b. Pittaja;
c. Kaphaja; d. Sannipataja

*Answer*: (a)

**7. Which of the following type of Grahani mimics the features of Amavata?**

a. Sannipataja; b. Vataja;
c. Pittaja; d. Kaphaja

*Answer*: (b)

**8. The symptoms of Sangraha Grahani is worsened in which of the following time period?**

a. Day time; b. Night time;
c. Early morning; d. Late night

*Answer*: (a)

**9. Streeshu Aharshana (aversion towards women or sexual intercourse) is observed in which of the following type of Grahani?**

a. Vataja Grahani;
b. Kaphaja Grahani;
c. Vataja Jvara;
d. Vataja Arshas

*Answer*: (b)

**10. Which of the following condition can be equated with Grahani Roga?**

a. Diarrhoea;
b. Abdominal swelling;
c. Sprue;
d. Haemorrhoids

*Answer*: (c)

### Chapter resources

- Charaka Samhita, Chikitsa Sthana 15th chapter – Grahani Dosha Chikitsa Adhyaya
- Madhava Nidana 4th chapter – Grahani Nidana Adhyaya
- Ashtanga Hridaya Nidana Sthana 8th chapter – Atisara Grahanidosha Nidana Adhyaya
- Ashtanga Sangraha Nidana Sthana 8th chapter – Atisara Grahanidosha Nidana Adhyaya

- Golwalla's medicine for students by Aspi F Golwalla and *Sharukh* A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

## CHAPTER

## 7

Nausea
Abdominal Pain and Cramps
Vomiting
Diarrhoea
Fever
Headache and overall Weakness (in rare cases, The weakness can cause Trouble breathing)

# Visuchika, Alasaka and Vilambika

### Learning Objectives

- ⇨ To understand the concepts of Visuchika, Alasaka and Vilambika
- ⇨ To understand the Nidana Panchaka of Visuchika, Alasaka and Vilambika mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the diseases
- ⇨ To describe Lakshana, Upadrava, Sadhyasadhyata of Visuchika, Alasaka and Vilambika

## Introduction

*Visuchika, Alasaka* and *Vilambika* are the set of the diseases which affect the *Annavaha Srotas*. *Alasaka* and *Visuchika* are together termed as *Ama Pradosha* as per *Charaka*. These are acute clinical manifestations of *Annavaha Srotas*. These diseases are usually of shorter duration and these are the outcomes of improper management of *Amajirna, Vishtabdhajirna* and *Vidagdhajirna*. This information indicates that the descriptions about *Nidana, Samprapti, Lakshana* etc mentioned in the context of *Ajirna* can be incorporated in the context of *Visuchika, Alasaka* and *Vilambika*. In other words, these diseases are the *Upadrava* of *Ajirna* where in there is abnormal vitiation of *Kapha, Vata* and *Pitta* respectively.

**अजीर्णमामं विग्धं विदग्धं च यदीरितम्।**
**विसूच्यखसकी तस्माद्भवेच्चापि विलम्बिका॥1 5॥** Ma.Ni. – 6/15

*Madhava Nidana* states the causes of *Visuchika, Alasaka* and *Vilambika* are *Amajirna, Vishtabdhajirna* and *Vidagdhajirna* respectively.

## Visuchika[1]

**सूचीमिरिच गात्राणि तुदन् संतिष्ठतेऽनिखः।**
**यत्राजीर्णेन सा वैचैर्विपीति निगद्यते॥1 6॥**
**न तां परिमिताहारा लभन्ते विदितागमाः।**
**सूदास्तामजितात्मानो लभन्तेऽशनलोलुपः॥1 7॥** Ma.Ni. – 6/16,17

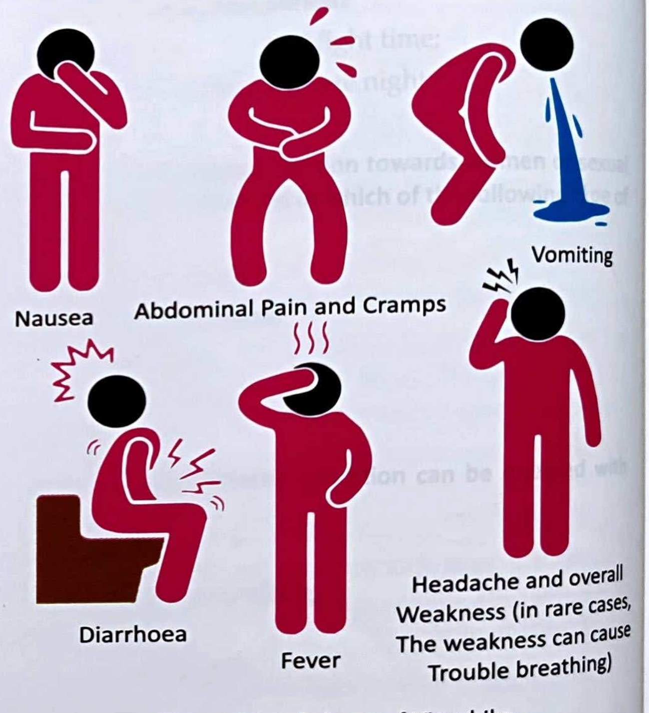

Nausea
Abdominal Pain and Cramps
Vomiting
Diarrhoea
Fever
Headache and overall Weakness (in rare cases, The weakness can cause Trouble breathing)

**Figure 11:** Lakshana of Visuchika

**'विविधेर्वेदनाभेदेवोय्वादेभ्रेशको पतः।**
**सूचीनिरिव गात्राणि मिनत्तीति विसूचिका'**
Madhu, Ma.Ni. – 6/16,17

*Visuchika*[2] is a condition where in an individual observe himself regarding pricking type of pain all over the body.

---

**GK**

[1] **Figure 11:** Lakshana of Visuchika

[2] Visuchika is a Annavaha Srotovikara and the cardinal feature of Visuchika is not related to Annavaha Srotovikara. How it is possible?
- To answer this question, first we have to identify what are the cardinal features of Visuchika. Upward and downward movement of vitiated Dosha along with excess fluid is the main reason for abnormal fluid loss. This fluid loss is associated with electrolyte imbalances in terms of sodium, potassium, chloride and calcium ions. These electrolytes are required for every muscular and neurological activity

This is considered to be due to dominance of *Kapha* and *Vata Dosha* in the body. The dominance of *Kapha Dosha* is manifested by *Amajirna* which occurs due to the abnormal vitiation of *Kapha Dosha* in *Mahasrotas* (alimentary canal). As per *Madhava Nidana*, the person who is not consuming the food without taking considering appropriate dietary measures.

## Lakshana of Visuchika

मुच्छोऽतिसारो मधुः पिपासा शूलो प्रभोद्वेष्टनजृम्भदाहाः।
वैवकम्पी हृदये रुजन्म भवन्ति तस्यां शिरसः॥18॥ Ma.Ni. – 6/18

- **Murcha**[3] – altered state of consciousness
- **Atisara**[4] – frequent passage of liquid or semi liquid stools
- **Vamathu**[5] – vomiting
- **Pipasa**[6] – thirst
- **Shula**[7] – pricking type of pain the abdominal region
- **Bhrama**[8] – giddiness
- **Udveshtana**[9] – muscle cramps in the calf region
- **Jrimbha**[10] – excess yawning
- **Daha**[11] – burning sensation
- **Vaivarnya**[12] – discolouration
- **Kampa**[13] – involuntary movements
- **Hridaya Ruja**[14] – chest discomfort
- **Shirasah Bheda**[15] – tearing type of pain in the head region

---

G K

in the body.

- When the person is having excess fluid from two of his major orifices i.e. mouth and anus, the person is usually avoiding the fluid intake only. This will lead to the depletion of water, sodium, potassium, calcium ions from the body leading to electrolyte imbalance which may have generalised clinical manifestation. Fi
- This leads to the cardinal feature of Visuchika i.e. pricking type of pain all over the body.

[3] This is attributable to excess fluid loss from the body. As we all know the percentage of water in the human body is about 2/3rd of the human body (66.6% and when an individual is presented with excess fluid loss from the body like diarrhoea or vomiting, there will be shrinkage of intravascular, interstitial and intracellular compartments. The fluid concentration is profoundly reduced so that the brain receive minimum amount of blood supply. This may lead to altered state of consciousness which may range from delirium to coma.

[4] This is one of the cardinal feature of Visuchika. In this case, the person will have loss of concentration of fluid from body. During this clinical presentation, the person will have expulsion of more amount of glucose, sodium and potassium ions from the body. These essential nutrients such as sodium, potassium, glucose and water will be lost from the body. Sodium and potassium ions are required for every activity of cell skeletal muscle contraction, smooth muscle activity, cardiac muscular activity and nuero connections too.

[5] In this evaluation of this symptom too, the person will have considerable amount of loss of water, glucose, sodium and potassium. The pathological events occur in this situation is like pathological aspects of the king.

[6] As per current understanding, the term Trishna refers to thirst. When an individual presents with thirst, it indicates considerable amount of fluid loss from the body. Gastrointestinal and pharyngeal stimuli influence mechanism of thirst. Drinking of water in such occasion can have temporary relief from thirst. Gastro intestinal distension can partially alleviate thirst. After a person drinks water, 30 to 60 minutes may be required for the water to be reabsorbed and distributed throughout the body and then only the person may have proper restoration of blood volume to be normal and thirst sensation will be relieved.

[7] This is attributable to the inflammatory reaction occurring in the alimentary canal. This inflammation reaction may occur in stomach, small intestine and large intestine.

[8] This clinical presentation can occur in patients who are having dehydration where syncopal episodes are observed due to cerebral hypoperfusion.

[9] This can be attributable to electrolyte imbalance, hyponatremia and/or hypokalemia in particular. This can occur in any part of the body, calf muscles, abdominal muscles, skeletal muscles of the upper and lower limb.

[10] Yawning is an activity consists of wide opening of mouth with maximal widening of jaw, together with a long and deep inhalation through mouth an nose, followed by slow expiration, associated with a feeling of comfort. The average duration of yawn is 5 seconds. Additionally, stretching of the limbs also frequently accompanies yawning in humans. Following hypotheses can be put forth in understanding the concept of yawning.

- When an individual does yawning, that will lead to the shift of temperature from the core of the head region to the periphery of head and neck.
- Yawning relieves the pain in the ears by opening of eustachian tube which has a connection with middle ear by removing the blockage present in the tube.

  Yawning is triggered when blood or brain oxygenation is insufficient, when O2 level is decreased and CO2 is increased. Yawning removes CO2 from the lungs and increases the O2 circulation in the brain.

[11] This can be attributable to nutrition deficiency.

[12] As per Ayurveda, the Varna includes not only colour, it also includes texture of the skin. In this occasion, the term Vaivarnya refers to abnormal loss of skin turgor.

[13] This can be attributable to electrolyte imbalance, hyponatremia and/or hypokalemia in particular. Sometimes, hypocalcemia may also lead to involuntary movements.

[14] This can be attributable to hypovolemic shock where cardiac compromise has occurred.

[15] This can be attributable to cerebral hypoperfusion which can occur as a result of hypotension which results due to the shrinkage of intravascular compartment.

## Alasaka [16]

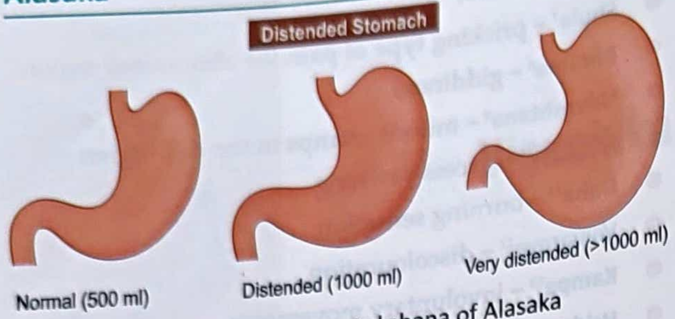


Figure 12: Pratyatma Lakshana of Alasaka

कुक्षिरानातेऽत्यर्थ प्रताम्येत्परिकूजति।
निरुद्धो मारुतचैव कुक्षावुपरि धावति॥19॥
बातवचनिरोधश्च यस्यात्यर्थ भवेदपि।
तस्यालसकमाचष्टे तुष्णोङ्गारी च यस्य तु॥20॥ Ma.Ni. – 6/19,20
'प्रयाति नोर्ध्वं नाधस्तादाहारो न विपच्यते।
आमाशयेऽलसीभूतस्तेन चालसकः स्मृतः' Madhu, Ma.Ni. – 6/19,20

In *Alasaka*[17], the abdominal region[18] is distended excessively and the person suffering from this condition will be presented with darkness in front of the eyes and makes cooing type of sounds from the mouth. Downward movement of *Vata Dosha* is becoming reversed and associated with excess retention of flatus and faecal matter, thrist and absence of eructation.

## Vilambika

दुष्टं तु भुक्तं कफमारुताभ्यां प्रवर्तते नोर्ध्वमधश्च यस्य।
विलम्बिकां तां भृशदुश्चिकित्स्यामाचक्षते शास्त्रविद्: पुराणाः॥21॥
Ma.Ni. – 6/21

The disease, *Vilambika* is manifested in an individual due to the vitiation of *Pitta* dominant *Ajirna* i.e. *Vidagdhajirna* if timely management is not administered to the suffering individual. *Vilambika* is the disease where there will be features similar to *Alasaka* are seen i.e. non movement of vitiated *Dosha* from oral and anal routes. This is manifested in an individual due to the excess vitiation of *Kapha* and *Vata Dosha*. As far as the management of the disease is concerned, it is very difficult to cure.

- Due to the exposure to the etiological factors, first there will be poor functioning of *Agni*. This stage leads to the formation of *Ama* in the *Amashaya*. If the person is not following appropriate measures, in this situation, that will lead to the vitiation of *Vata* and *Kapha Dosha*. This stage of the disease will further hampers the function of Agni (digestive fire) and further leads to the formation of more amount of *Ama*.
- Food gets stagnated and remain in the state of indigestion. This leads to the fermentation of ingested food and it will lead to the formation of *Amavisha* (toxin) and leads to the manifestation of *Ajirna*.

## Dandalasaka is another name of Vilambika

Difference between *Alasaka* and *Vilambika*: When we learn the concepts of *Alasaka* and *Vilambika*, both are considered to be manifested due to the vitiation of *Kapha* and *Vata Dosha*. The main difference between the two is severity of pain. In *Alasaka*, the person will be presented with severe pain in the abdominal region, where as in the patient of Vilambika, the person will have mild pain as the person will having the disease is chronic in duration.

## Asadhya Lakshana of Visuchika and Alasaka

यः श्यावदन्तौष्ठनखोऽल्पसंज्ञो वम्यर्दितोऽभ्यन्तरयातनेत्रः।
क्षामस्वरः सर्वविमुक्तसन्धिर्यायान्नरः सोऽपुनरागमाय॥23॥
Ma.Ni. – 6/23

### Asadhya Lakshana[19] of Visuchika and Alasaka include

- Blackish discolouration of teeth, lips and nails
- Altered state of consciousness
- Vomiting
- Sunken eyes appearance
- Feeble voice
- Looseness of all joints

---

**GK**

[16] **Figure 12:** Pratyatma Lakshana of Alasaka

[17] In Alasaka, the Dosha vitiation is concentrated on Amashaya itself. The primary involvement is vitiated Vata Dosha in the Pakvashaya. This results in upward movement of Vata Dosha leading to absence of passage of flatus and faecal matter. This vitiated Vata Dosha is responsible for the further vitiation of Samana Vata thereby we are going to find out the Lakshana in Amashaya itself.

[18] Distension of the abdomen is attributable to delayed gastric emptying i.e. poor motility from the stomach to duodenum. The factors responsible for poor gastric emptying are as follow:
1. The degree of distension of the duodenum
2. The presence of any degree of irritation of the duodenal mucosa
3. The degree of acidity of chyme
4. The degree of osmolality of chyme
5. The presence of certain breakdown products in the chyme, especially breakdown products of proteins and sometimes fats.

If the person is indulging in any of the activities which lead to above phenomena in the stomach, there will be poor gastric and intestinal motility which mimic the features of Alasaka.

[19] Among the Asadhya Lakshana mentioned in Madhava Nidana, blackish discolouration of teeth, lips and nails indicate poor blood circulation to the periphery. Altered state of consciousness indicates reduced circulation i.e. syncope. Vomiting, sunken eyes, feeble voice and looseness of joints indicate mechanism of dehydration.

## Upadrava of Visuchika[20]

निद्रानाशोऽरतिः कम्पो मूत्राघातो विसंज्ञता।
अमी छुपद्रवा घोरा विसूच्यां पञ्च दारुणाः॥25॥
प्रायेणाहारवैषम्यादजीर्ण जायते नृणाम्।
तन्मूलो रोगसंघातस्तद्विनाशाद्विनश्यति॥26॥ Ma.Ni. – 6/25,26

- Loss of sleep
- Restlessness
- Involuntary movements
- Retention of urine
- Abnormal sensory perceptions
- All major diseases

## Key summary of the chapter

- Ama Pradosha is the spectrum of diseases where we can see acute disturbances of functioning of gastrointestinal tract.
- Visuchika, Alasaka are considered to be manifested in an individual due to Ama Pradosha (accumulation of Ama in the alimentary canal). As per Madhavakara, Visuchika, Alasaka and Vilambika are manifested due to Amajirna, Vishtabdha Ajirna and Vidagdha Ajirna respectively.
- Visuchika is the disease where cardinal feature observed is abnormal and excessive elimination of morbid Dosha from the upper and lower routes i.e. through mouth and anus simultaneously. Alasaka is the disease where we can observe prolonged stasis of the food in the stomach which can manifest due to the continuous consumption of highly spicy substances. Vilambika is the disease where the primary Dosha is Pitta and in this disease, the person is unable to have elimination of morbid Dosha through oral as well as anal routes.

## Self-Assessment: Questions for Reviews

### Long essay questions

- Explain Amapradosha in detail

### Short essay questions

- Explain Alasaka
- Describe Visuchika
- Elaborate Vilambika

### Short answers

- Enumerate Ama Pradosha
- Write the difference between Alasaka and Vilambika
- Define Alasaka
- Write the definition of Visuchika
- Write the Pratyatma Lakshana of Visuchika

## MCQs

**1. Improper treatment of Amajirna leads to the manifestation of**

a. *Ama Pradosha;*
b. *Visuchika;*
c. *Alasaka;*
d. *Vilambika*

*Answer*: (b)

**2. Alasaka is manifested in an individual due to improper treatment of**

a. *Amajirna;*
b. *Vidagdhajirna;*
c. *Vishtabdhajirna;*
d. *Rasasheshajirna*

*Answer*: (c)

**3. As per Charaka, the types of Ama Pradosha are**

a. 1; b. 2;
c. 3; d. 4

*Answer*: (b)

**4. The site of disease in case of Alasaka is**

a. *Pakvashaya;* b. *Garbhashaya;*
c. *Pittashaya;* d. *Amashaya*

*Answer*: (d)

**5. Dosha dominance observed in the manifestation of Vilambika is/are**

a. *Vata* only;
b. *Vata* and *Pitta* only;
c. *Pitta* and *Kapha* only;
d. *Vata* and *Kapha* only

*Answer*: (d)

**6. Murcha Atisaro Vamathuh Pipasa Shulam are the characteristic features of**

a. Alasaka; b. Pravahika;
c. Visuchika; d. Vilambika

*Answer*: (c)

**7. The complications of Visuchika are**

a. 3; b. 5;
c. 4; d. 6

*Answer*: (b)

---

[20] If we look the clinical features observed in Upadrava of Visuchika we can thread the each clinical features into the features of circulatory and neurogenic shock.

**8. The cardinal feature of Visuchika is pricking type of the body in which part of the body?**

a. Abdomen;

b. Chest;

c. All over the body;

d. Anus

*Answer*: (c)

**9. As per Madhavakara, the types of Visuchika are**

a. 2;

b. 4;

c. 3;

d. Types of Visuchika not mentioned by Madhavakara

*Answer*: (d)

**10. The clinical features of Visuchika are resembling the features of**

a. Acute colitis;

b. Acute oesophagitis;

c. Acute gastroenteritis;

d. Acute encephalitis

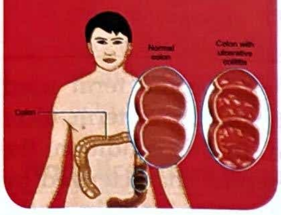
*Answer*: (c)

**Chapter resources**

- Madhava Nidana – 6th chapter – Agnimandya Ajirna Visuchika Alasaka Vilambika Nidana
- Charaka Samhita Vimana Sthana – 2nd chapter – Trividha Kukshiya Vimana Adhyaya
- Sushruta Samhita Sutra Sthana – 46th chapter – Annapana Vidhi Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

# CHAPTER 8



# Common Git Diseases

## Learning Objectives

- ⇨ To learn about the common occurring gastrointestinal diseases
- ⇨ To know about the common pathophysiology occurring in gastrointestinal diseases
- ⇨ To know the common clinical features in gastrointestinal diseases
- ⇨ To know about ulcerative dyspepsia, non ulcer dyspepsia, irritable bowel syndrome, inflammatory bowel disease in elaborate manner in terms of aetiology, clinical features, method of physical examination and necessary laboratory investigations to diagnose these diseases
- ⇨ To know about the method of physical examination of the patients suffering from above mentioned diseases
- ⇨ To know about the necessary laboratory investigations to be peformed to diagnose above diseases

## Introduction

Alimentary canal or gastrointestinal tract is a system which starts from mouth to anus with multiple sphincters at different locations to have compartments in the alimentary canal which help in the transformation of unabsorbable macromolecules into the absorbable micromolecules. The gut wall is composed of well defined layers starting from mucosal layer, submucosal layer, muscular layer and serous layer which contribute in specific function of the alimentary canal. As far as the functions of the alimentary canal are concerned, it can be categorized into two major functions – digestion and assimilation of ingested food substances from macromolecules into micromolecules and excretion of undigested food residue from the small intestine to the exterior through anal canal.

As far as the functional anatomy of alimentary canal is concerned, mouth is responsible for the processing of the food in the form of mixing of the food with salivary amylase and sent further to the distal part of the alimentary canal. The food then enters into the oesophagus which further moves into the stomach within seconds. In the stomach, the food is stored for a period of 2 hours where mixing of ingested food with gastric juice containing hydrochloric acid and pepsin, the ingested food is converted into intermediate molecules, thus chyle is formed. After 2 hours, the pyloric antrum opens leading to the movement of chyle into the duodenum. In the intestine, conversion of macromolecules and intermediate molecules into micromolecules by the intestinal enzymes and bile. The total time duration of the presence of food in the small intestine is upto 6 hours. After the digestion and assimilation of the food substances, the food residue enters into the large intestine. In the large intestine, absorption of water, electrolytes etc occurs and the food residue may remain in the large intestine for a period of 1 to 2 days. Later, the food residue enters the rectum and thence to the anus and later to the exterior when an individual gets defaecation reflex.

As far as overview of gastrointestinal diseases are concerned, it can be subclassified in the following sections.

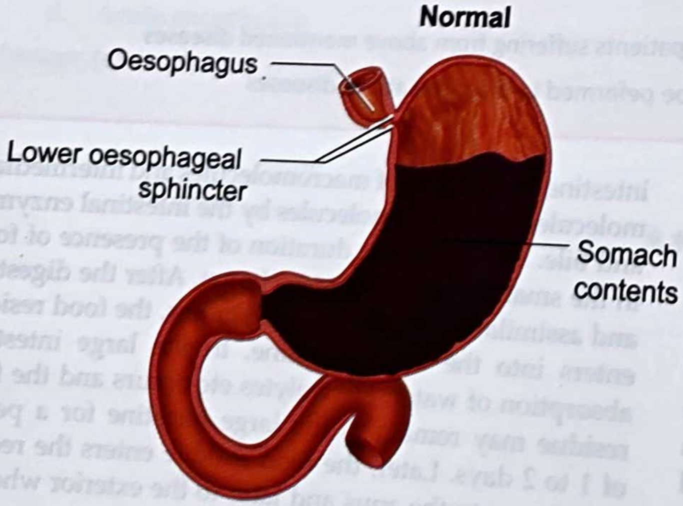
- **Impaired digestion and absorption:** Diseases of stomach, small intestine and large intestine, biliary tree and pancreas may have digestive impairment.
- **Altered secretion:** Gastric hypersecretion in Zollinger Ellison syndrome; hyposecretion in case of pernicious anemia.
- **Altered gut transit:** This may result mostly because of mechanical obstruction. Esophageal carcinoma, gastric carcinoma, small intestinal obstruction and large intestinal obstruction, achalasia cardia are responsible for the mechanical obstruction.
- **Immune dysregulation:** The mucosal inflammation of celiac disease results from dietary ingestion of gluten containing grains. Some patients with food allergy

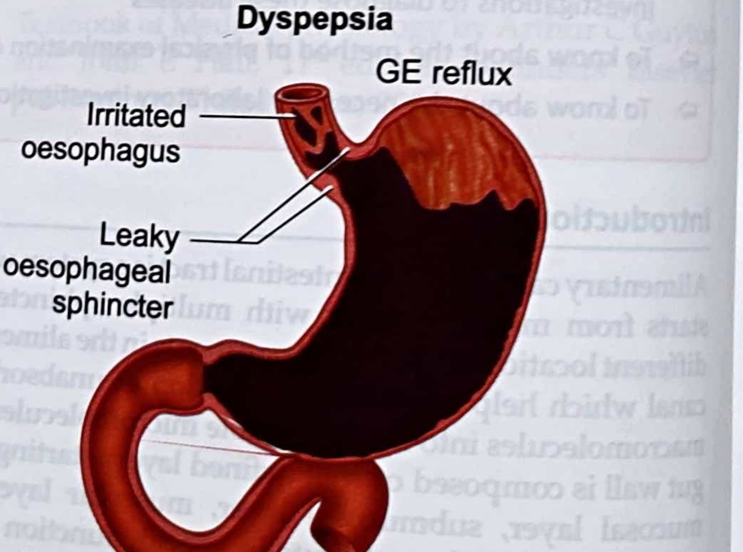
also exhibit altered immune populations. Eosinophilic esophagitis and eosinophilic gastroenteritis are inflammatory disorders with prominent mucosal eosinophils. Ulcerative colitis and Crohn's disease are manifested due to mucosal injury primarily in the lower alimentary canal. Bacterial, viral and protozoal organisms may produce produce ileitis or colitis in selected patient populations.

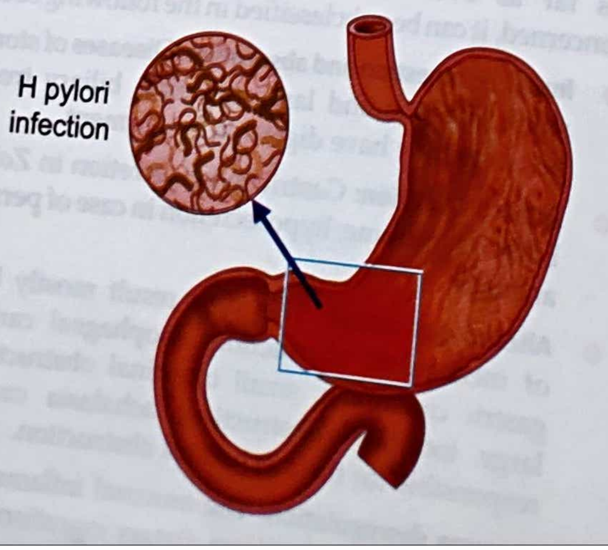
- **Impaired alimentary canal blood flow:** Different organs are at risk for ischemic damage from impaired blood flow. Most commonly observed are intestinal and colonic ischemia, which are consequences of artherial thrombi, emboli, venous thrombi or hypoperfusion from dehydration, sepsis, haemorrhage or reduced cardiac output.
- **Neoplastic degeneration:** All gastrointestinal organs are susceptible for the manifestation of the malignancies. Colon is the most common organ where malignancy can occur.
- **Disorders without obvious structural abnormalities:** Irritable bowel syndrome, non-ulcerative dyspepsia, non cardiac chest pain and functional heartburn may show altered alimentary canal movement dysfunction.
- **Genetic influences:** some diseases may have an influence of environmental factors, other may have genetic influences. Inflammatory bowel disease (IBD), colonic and oesophageal cancers can be observed in some of the patients as inherited diseases.

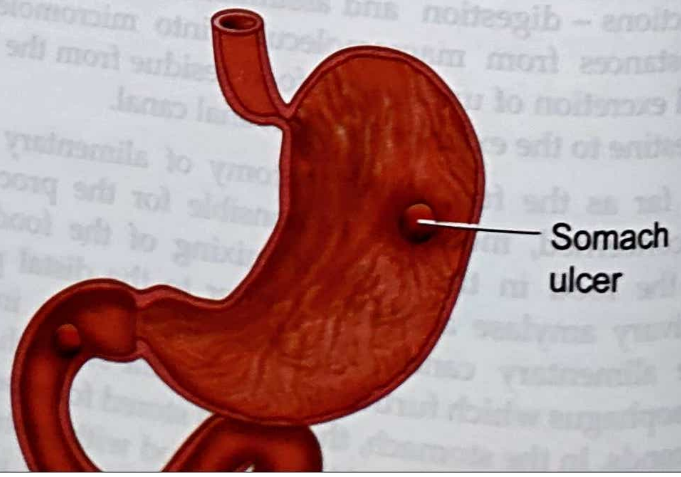
## Ulcerative Dyspepsia

In western medicine, there is no specific term used as ulcerative dyspepsia (Ref. **Figure 13**). A term ulcer like functional dyspepsia is used. In this condition, the person will have a symptom complex characterized by epigastric discomfort, burning sensation or pain in the upper abdomen at times associated with eating and often accompanied by belching, nausea or/and vomiting. The difference with non ulcerative dyspepsia, the patient will have abdominal discomfort not related with meal intake. Acid hypersensitivity of the gastric mucosa is considered to be the major causative factor for the manifestation of ulcer like functional dyspepsia.









The prevalence of ulcer like functional dyspepsia ranges from 20-30% and annual incidence of over 1%. It is at least as twice as common from peptic ulcer disease.

- Ulcer like functional dyspepsia is common and costly, as it occurs in the patients who have received the treatment to control gastric acidity.
- The major differential diagnosis of this disease is acid peptic disease. This condition incorporates gastric ulcer, duodenal ulcer, oesophageal ulcer. This disease manifests in individuals due to imbalance between acid secretion and gastric mucosal defences.

## Non Ulcerative Dyspepsia

This is also being termed as functional dyspepsia (Ref. **Figure 14**). In this condition, the structural changes are not noticed. The term dyspepsia refers to persistent or recurrent epigastric pain or meal related upper abdominal pain. This is characterized by early satiety or postprandial fullness. This is different from heartburn (burning sensation in the epigastrium observed till retrosternal region in the chest) is atypical in relation to dyspepsia. This disease is not having any relation to meal association. Endoscopy will be beneficial in the diagnosis of non ulcer dyspepsia.

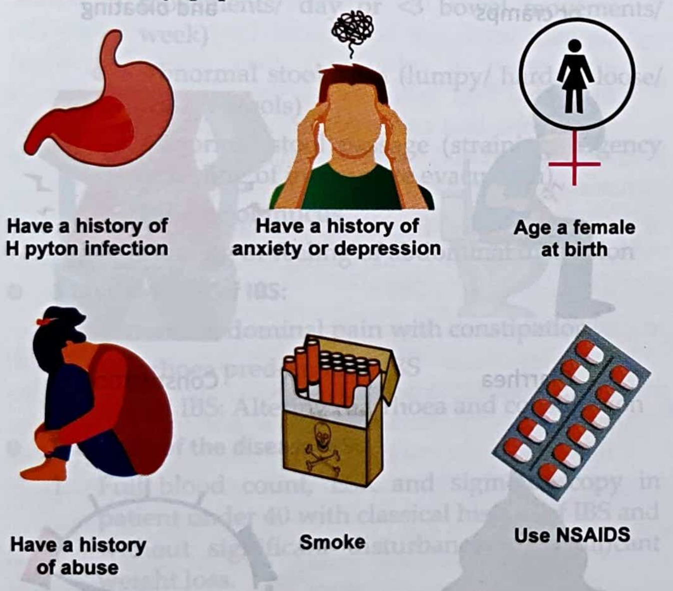

Have a history of H pyton infection
Have a history of anxiety or depression
Age a female at birth
Have a history of abuse
Smoke
Use NSAIDS

Figure14 : Non ulcer dyspepsia

- Prevalence of the disease is around 25% around the world.
- **Aetiological factors:**
  - **Helicobactor pylori infection of the stomach:** This infection is also the probable cause of gastritis, peptic ulcer disease and gastric carcinoma
  - **Disturbed motor function of the stomach:** Delayed gastric emptying, and reduced intestinal motility in the small intestine. This is observed in about 25 to 40% of the patients.
  - **Central nervous system disturbances:** Acute stress may lead to nervous disturbances which hampers gastric motility.
  - **Diet and environmental factors:** Coffee may induce functional dyspepsia in about 50% of the patients.
- **Clinical features:** The clinical features of functional dyspepsia can be subdivided into those with typical ulcer like symptoms, such as epigastric pain related to meals or waking the patient from sleep (ulcer like dyspepsia) and those with symptoms suggestive of a gut motor disturbance, such as postprandial fullness or early satiety (dysmotility like dyspepsia). Dyspepsia is frequently associated with minor classic reflux symptoms, in particular, heartburn; if reflux symptoms dominate, the diagnosis is symptomatic gastrooesophageal reflux disease until proved otherwise.
- **Differential diagnosis:** Differential diagnosis of non ulcer dyspepsia include chronic peptic ulcer disease, gastrooesophageal reflux disease with or without oesophagitis and malignancy of the stomach, biliary tract disease, pancreatic disease, drug induced dyspepsia, aerophagia, ischemic heart disease (IHD), intestinal angina, and other disorders such as diabetes mellitus, metabolic disturbances such as hypothyroidism or hypercalcemia.
  - **Chronic peptic ulcer disease:** This is associated with mild pain in the epigastric region.
  - **Gastroesophageal reflux disease:** This is associated with burning sensation in the epigastrium and retrosternal region.
  - **Gastric and oesophageal cancer:** The duration of the illness in these diseases is very shorter i.e. < 2 months or less depending upon the nature of the progression of the tumour. The patient may have early satiety and dysphagia and haematemesis, malena.
  - **Biliary tract disease:** This is associated with cholelithiasis and obstruction of bile duct with gall stones. In this disease, the person will have pain the right hypochondriac region radiating towards to inferior angle of right scapula. This can be diagnosed by ultrasonography.
  - **Pancreatic disease:** In this disease, the person may develop pain in the epigastric region radiating to the back towards the left side. In this disease, the person will have projectile vomiting.
  - **Drug induced dyspepsia:** NSAIDs, alendronate, orlistat, iron and potassium supplements, digitalis, theophylline and oral antibiotics, erythromycin and ampicillin are the some of the drugs which leads to the manifestation of dyspepsia.
  - **Aerophagia:** Air swallowing with belching

is normal and occurs 3 to 4 times per hour. Excessive, uncontrolled swallowing of air leading to abdominal distension or bloating which improves on occurrence of belching. The diagnosis of aerophagia is confirmed by specific history and can be confirmed by observing excessive air swallowing between meals and repetitive belching.

➢ **Other disorders:**

- **Diabetes mellitus:** In this, the person will have postprandial fullness, early satiety, nausea or vomiting, and this can be attributable autonomic dysfunction.
- **Hypothyroidism or hypercalcemia:** may induce upper abdominal distress.
- **Ischemic heart disease,** of inferior wall of the heart may have upper abdominal distress which is induced by exertion.
- **Intestinal angina (chronic mesenteric ischemia):** this can be seen in smokers in particular. In this, the patient will have postprandial fullness and fear of eating and significant weight loss.
- **Abdominal** wall pain will have confusion with functional dyspepsia.

## Irritable Bowel Syndrome

Irritable bowel syndrome (IBS) (Ref. **Figure 15)** is a functional disease where structural lesions are not observed during the progression of the disease. It consists of group of symptoms related to lower gastro intestinal tract. This is characterised by abdominal discomfort or pain that is accompanied by at least two of the following: relief by defaecation, change in frequency of stools or change in consistency of stool. The cause is unknown, and pathophysiology is poorly understood. Three clinical types are identified depending on the clinical presentation. Diagnosis is clinical.

- Irritable bowel syndrome consists of a group of GI symptoms particularly associated with lower bowel in the absence of demonstrable organic pathology.
- The etiology of IBS is unknown. No anatomic cause can be found on laboratory tests, x rays or biopsies. Emotional factors, diet, drugs or hormones may precipitate or aggravate GI symptoms. Based on the history, this disease is considered to be purely psychosomatic. Certain physiological factors are known to cause IBS.
- **Psychosomatic factors:** Anxiety, depression or somatisation disorder, sleep disturbances, emotional conflict are associated with onset of symptoms and onset of the disease.
- **Physiological factors:** A variety of physiological factors seem to be involved in IBS symptoms. Factors include altered motility, visceral hyperalgesia, various genetic and environmental factors. Constipation may be explained by slower colonic transit and diarrhoea may be explained by faster colonic transit. Visceral hyperalgesia refers to hypersensitivity to normal amounts of intraluminal distension and heightened perception of pain in the presence of normal quantities of intestinal gas. Postprandial abdominal discomfort may be attributed to an exaggerated gastro-colic reflex (the colonic contractile response to a meal). Sometimes, fat ingestion may exaggerate hypersensitivity. Rectal sensitivity is increased during menstruation but not during other phases of menstrual cycle.

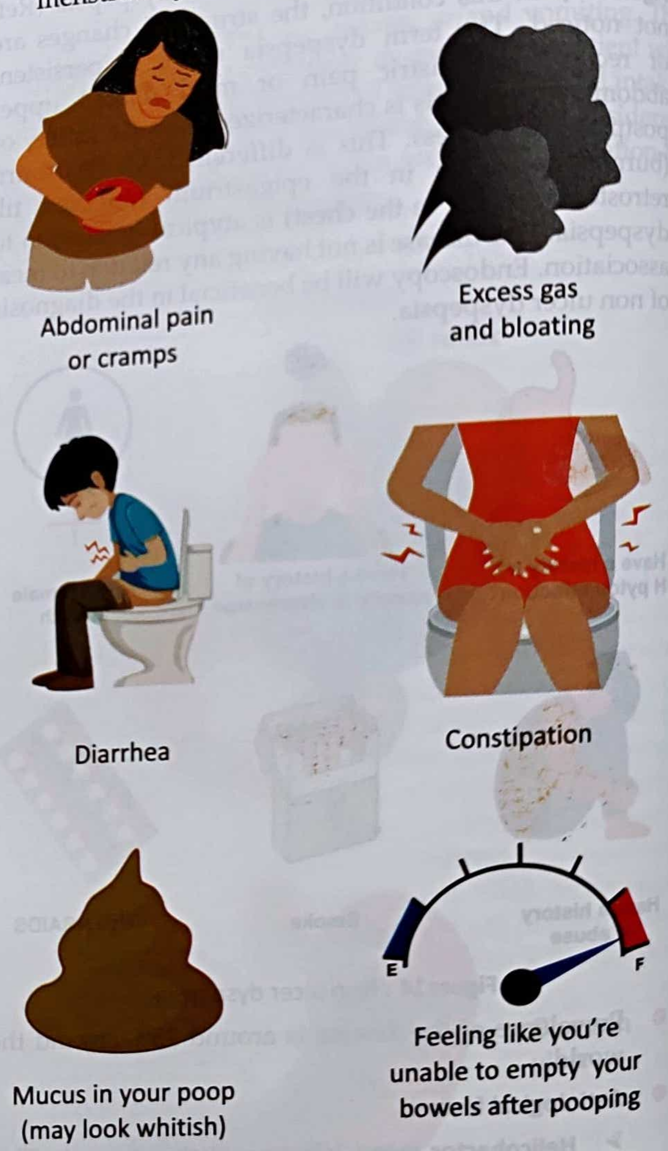

Abdominal pain or cramps
Excess gas and bloating
Diarrhea
Constipation
E
F
Mucus in your poop (may look whitish)
Feeling like you're unable to empty your bowels after pooping

**Figure 15 :** Clinical features of irritable bowel syndrome

- IBS tends to begin in teens and 20s, causing bouts of symptoms that recur at irregular periods. Onset is late adult life is less common, but not rare. Symptoms may rarely rouse the sleeping patient. symptoms are often triggered by food, particularly fat or by stress. Patients will have abdominal discomfort in the lower quadrant, steady and cramping in nature, and relieved by defaecation. Abdominal discomfort is temporarily associated with alteration in stool frequency. Patients may have symptoms of abnormal stool passage (straining, urgency or feeling of incomplete evacuation), pass mucus or complain of bloating or abdominal distension. Many patients may also have symptoms of dyspepsia. Extraintestinal symptoms (fatigue, fibromyalgia, sleep disturbances, chronic headaches) are common.

- **Diagnosis is clinical,** based on Rome criteria.
- **Rome criteria:** Recurrent abdominal pain or discomfort for at least 3 days per month in last 3 months (with symptoms onset at least 6 months prior to diagnosis) associated with two or more of the following:
  1. Improvement after defaecation
  2. Onset associated with change in frequency of stools
  3. Onset associated with change in form (appearance) of stools
  4. Other symptoms that are not essential but support the diagnosis of IBS
     - Abnormal stool with frequency (>3 bowel movements/ day or <3 bowel movements/ week)
     - Abnormal stool form (lumpy/ hard or loose/ watery stools)
     - Abnormal stool passage (straining, urgency or feeling of incomplete evacuation)
     - Passage of mucus
     - Bloating or feeling of abdominal distension
- **3 clinical types of IBS:**
  1. Chronic abdominal pain with constipation
  2. Diarrhoea predominant IBS
  3. Mixed IBS: Altering diarrhoea and constipation
- **Diagnosis of the disease IBS:**
  1. Full blood count, ESR and sigmoidoscopy in patient under 40 with classical history of IBS and without significant disturbance or significant weight loss.
  2. Rectal biopsy in patients with diarrhoea. Changes of inflammatory bowel disease or less common types of colitis may be found in a normal rectum.
  3. In patients with chronic diarrhoea, further investigations to rule out coeliac disease, Crohn's disease.
  4. Rome Criteria of IBS is followed.

**Differential diagnosis of IBS:** Lactose intolerance, drug induced diarrhoea, post-cholecystectomy diarrhoea, laxative abuse, parasitic disease, eosinophilic gastritis or enteritis, microscopic colitis and early inflammatory bowel disease.

## Inflammatory Bowel Disease

The term 'inflammatory bowel disease' or IBD is commonly used to include 2 idiopathic bowel diseases having many similarities, but have distinctive morphological appearance. These diseases are Crohn's disease (regional enteritis) and ulcerative colitis.

1. Crohn's disease is also termed as regional enteritis is an idiopathic chronic ulcerative IBD. This is characterised by transmural, non-caseating granulomatous inflammation, affecting most commonly the segment of terminal ileum or colon, though any part of the alimentary canal may be involved.
2. Ulcerative colitis is an idiopathic form of acute and chronic ulcero-inflammatory colitis. This disease affects mucosa and submucosa of the rectum and descending colon. Sometimes, the whole large intestine may be afflicted.

**Etiopathogenesis:** The exact etiology of the IBD is not known. Genetic factors such as occurrence of the disease 3 to 20 times higher in first degree relatives, 50% of occurrence of the disease in monozygotic twins, defective regulation of immune suppression or activation of CD4+ cells or poor evidence of influence of Mycobacterium paratuberculosis or serious mental stress are often considered as triggering factors for the worsening of the symptoms in the patients of IBD. This indicates the multifactorial occurrence of the disease.

### Crohn's disease:

- This disease may involve any portion of the alimentary canal, but it commonly affects 15-25 cms of terminal ileum which may into the caecum and sometimes into the ascending colon.
- This is often presented with multiple, well demarcated segmental bowel involvement with intervening uninvolved skip areas. The wall of the affected bowel segment is thick and hard, resembling a hose pipe. Serosa may be studded with ulcers, granulomas.
- Histologically, the tissue of the affected part contains chronic inflammatory cells (lymphocytes, plasma cells and macrophages) is the classical microscopic feature.
- The most common initial manifestation is chronic diarrhoea with abdominal pain, fever, anorexia and weight loss. The abdomen is tender, and a mass or fullness may be palpable. Gross rectal bleeding is unusual except in isolated colonic disease. With recurrent disease, symptoms may vary. Pain is most common and occurs with both simple recurrence and abscess formation. In progression of the disease, there will be formation of stenosis of the colon. Stenotic segments of colon may lead to intestinal obstruction associated with colicky pain, distension of abdomen, obstipation and vomiting. Adhesions can previous surgery can also lead to intestinal obstruction.

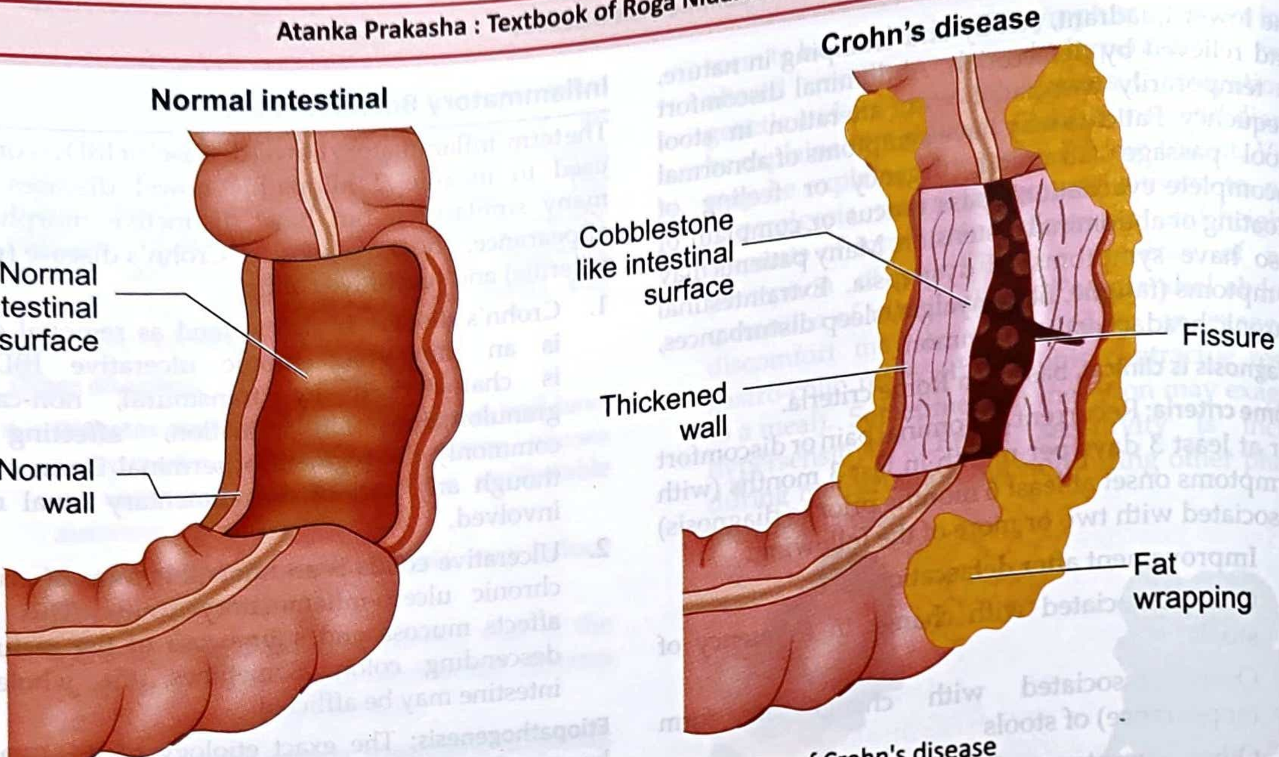


**Figure 16 :** Normal large intestine and intestine of Crohn's disease

- Chronic Crohn's disease causes a variety of systemic symptoms including fever, weight loss, undernutrition and extraintestinal manifestations.
- Crohn's disease is classified into 3 principal patterns
  1. **Inflammatory pattern:** which after several years can turn into stenotic or obstructing and penetrating or fistulising
  2. Stenotic or obstructing lesion which lead to intestinal obstruction
  3. Penetrating or fistulising lesion which lead to fistula formation in the colon
- Complications of Crohn's disease are
  1. Malabsorption due to impaired absorption of fat, vitamin B12, proteins and electrolytes
  2. Fistula formation may occur in long standing cases
  3. Stricture formation due to extensive fibrosis in the affected bowel wall.
  4. Development of malignancy in the small intestine.
- **Diagnosis of Crohn's disease:**
  1. Barium X ray of stomach, small intestine, colon
  2. Abdominal CT scan
  3. Upper endoscopy and colonoscopy

**Ulcerative colitis:**

- Classically, this disease begins in the rectum, and it continues upwards to sigmoid colon, descending colon, transverse colon and sometimes, whole colon can be involved.
- In this disease, the affliction is usually continuous, no skip areas are seen as in Crohn's disease. The appearance of colon may vary depending upon the stage and intensity of the disease because of remissions and exacerbations. Mucosa shows linear and superficial ulcers and not penetrating the muscular layer of the colon.
- Histologically, the tissue of the affected part is characterised by alternating active disease process and resolving colitis.
- **Symptoms and signs:** Bloody diarrhoea of varied intensity and duration is interspersed with asymptomatic intervals. Usually an attack begins insidiously, with increased urgency to defaecate, mild lower abdominal cramps and blood and mucus in the stools. Some cases start after the exposure to infection such as amoebiasis or bacillary dysentery.
  - ➤ When ulceration is confined to sigmoid colon and rectum, the stool may be normal or hard and dry, but rectal discharges of mucus is loaded with RBCs and WBCs accompany or occur between bowel movements. If ulceration extends proximally, stools become looser and the patient may have > 10 bowel movements per day, often with severe cramps and distressing rectal tenesmus, without respite at night. The stools may be watery or contain mucus and frequently consist of blood and mucus.
  - ➤ Toxic or fulminant colitis manifests initially with sudden violent diarrhoea, high grade fever upto 40° C (104° F), abdominal pain, signs

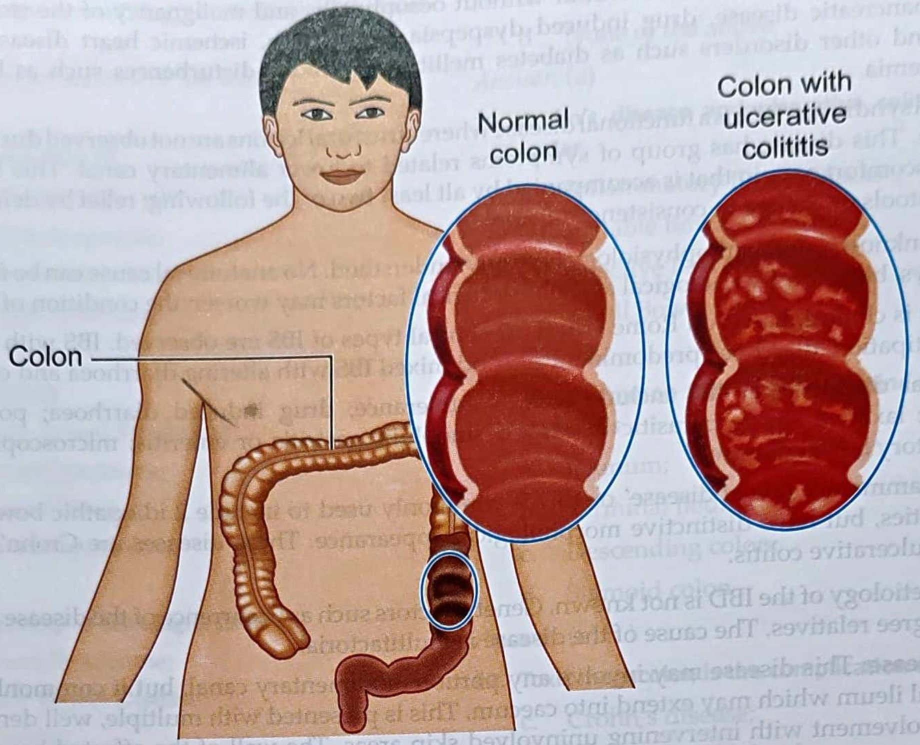


**Figure 17 :** Normal colon and colon of ulcerative colitis

of peritonitis such as rebound tenderness and profound toxemia.

- ➢ Systemic symptoms which occur in extensive ulcerative colitis include malaise, fever, anemia, anorexia and weight loss. Extraintestinal manifestations such as joint and skin complications in particular are most common when systemic symptoms are present.

❂ **Complications of ulcerative colitis:**

- ➢ **Toxic megacolon (Fulminant colitis):** This is acute fulminating colitis in which the affected colon is thin walled and dilated and is prone to perforation and fecal peritonitis.
- ➢ Carcinoma may develop in long standing cases of ulcerative colitis of more than 10 years duration.
- ➢ Perianal fistula and stricture formation in the affected part is rarely seen.

❂ **Diagnosis of ulcerative colitis:**

- ➢ Stool cultures and microscopy examination of stool
- ➢ Sigmoidoscopy with biopsy

## Key summary of the chapter

❂ This chapter discusses about the brief outline of description of normal and abnormal functioning of alimentary canal. This is one system which commences from mouth to anus, 9 meters long, helps in ingestion, storage, digestion, assimilation and excretion of the food substances. Due to various aetiological factors, the person may have abnormalities in above said functions of alimentary canal.

❂ The pathological events in the alimentary canal can be categorised into impaired digestion and absorption; altered secretion; altered gut transit; immune dysregulation; impaired alimentary canal blood flow; neoplastic degeneration; disorders without structural abnormalities and genetic factors induced.

❂ Ulcerative dyspepsia is a ulcer like functional dyspepsia, will have a symptom complex characterised by epigastric discomfort, burning sensation or pain in the upper abdomen. This is usually associated with eating.

❂ **Nonulcerative dyspepsia:** This is also termed as functional dyspepsia. No structural changes are noticed in this disease. This is characterised by early satiety or postprandial fullness. This is not having any relation to meal association. H pylori infection, disturbed motor function of the stomach, central nervous system disturbances such as mental stress, coffee may induce nonulcerative dyspepsia.

- **Differential diagnosis:** Differential diagnosis of non ulcer dyspepsia include chronic peptic ulcer disease, gastrooesophageal reflux disease with or without oesophagitis and malignancy of the stomach, biliary tract disease, pancreatic disease, drug induced dyspepsia, aerophagia, ischemic heart disease (IHD), intestinal angina, and other disorders such as diabetes mellitus, metabolic disturbances such as hypothyroidism or hypercalcemia.

- Irritable bowel syndrome (IBS) is a functional disease where structural lesions are not observed during the progression of the disease. This disease has group of symptoms related to lower alimentary canal. This is characterised by abdominal discomfort or pain that is accompanied by alt least two of the following: relief by defaecation, change in frequency of stools or change in consistency of stool.
  - Cause is unknown, and pathophysiology is poorly understood. No anatomical cause can be found on laboratory tests, x rays, biopsies. Psychological and physiological factors may worsen the condition of IBS.
  - Diagnosis is clinical, based on Rome criteria. 3 clinical types of IBS are observed: IBS with chronic abdominal with constipation; diarrhoea predominant IBS and mixed IBS with altering diarrhoea and constipation.
  - Differential diagnosis of IBS include lactose intolerance; drug induced diarrhoea; post-cholecystectomy diarrhoea; laxative abuse; parasitic disease; oesinophilic gastritis or enteritis; microscopic colitis and early inflammatory bowel disease.
- The term 'inflammatory bowel disease' or IBD is commonly used to include 2 idiopathic bowel diseases having many similarities, but have distinctive morphological appearance. These diseases are Crohn's disease (regional enteritis) and ulcerative colitis.
  - The exact etiology of the IBD is not known. Genetic factors such as occurrence of the disease 3 to 20 times higher in first degree relatives. The cause of the disease is multifactorial.
  - **Crohn's disease:** This disease may involve any portion of alimentary canal, but it commonly affects 15-25 cms of terminal ileum which may extend into caecum. This is presented with multiple, well demarcated segmental bowel involvement with intervening uninvolved skip areas. The wall of the affected bowel segment is thick and hard, resembling a horse pipe. Serosa may be studded with ulcers, granulomas. The most common initial manifestation is chronic diarrhoea with abdominal pain, fever, anorexia and weight loss. Complications of the Crohn's disease are malabsorption syndrome, fistula formation, stricture formation and malignancy of small intestine. Diagnosis of the disease is done by barium X ray of stomach, small intestine, colon; abdominal scan and upper endoscopy and colonoscopy.
  - **Ulcerative colitis:** Classically, this disease begins in the rectum, and it continues upwards to sigmoid colon, descending colon, transverse colon and sometimes whole colon can be afflicted. In this disease, the affliction is continuous, no skip areas seen like Crohn's disease.
  - The appearance of colon may vary depending upon the stage and intensity of the disease because of remissions and exacerbations. Symptoms and signs include blood mixed diarrhoea of varied intensity and duration is interspersed with asymptomatic intervals. Usually, an attack begins insidiously, with increased urgency to defaecate, mild lower abdominal cramps and blood and mucus in the stools. Fever, malaise, anaemia, anorexia and weight loss; extra intestinal manifestations such as joint and skin complications are also observed. Complications of the disease are toxic megacolon; carcinoma of rectum or colon; perianal fistula and stricture. Diagnosis of the disease is done by stool culture; microscopy examination of stool and sigmoidoscopy with biopsy.

## Self-Assessment: Questions for Review

### Short essay questions

- Explain irritable bowel syndrome
- Describe the pathology of irritable bowel syndrome
- Explain the causative factors of irritable bowel syndrome
- Explain in brief ulcerative dyspepsia
- Describe nonulcerative dyspepsia
- Explain Crohn's disease
- Describe ulcerative colitis
- Explain the differences between Crohn's disease and ulcerative colitis

### MCQs

1. **The chime enters into small intestine, which reaches caecum in**

a. 10 minutes; b. 6 hours;
c. 10 hours; d. 1 – 2 days

*Answer*: (b)

2. **Which of the following is false in case of functional dyspepsia?**

a. Also termed as nonulcerative dyspepsia;
b. The symptoms are not having any association with food intake;

c. The symptoms are having association with food intake;

d. All of the above statement are true

*Answer*: (c)

**3. Crohn's disease is a type of**

a. Ulcerative dyspepsia;

b. Nonulcerative dyspepsia;

c. Inflammatory bowel disease;

d. Irritable bowel syndrome

*Answer*: (c)

**4. The term IBS refers to**

a. Inflammatory Bowel Syndrome;

b. Irritable Bowel Syndrome;

c. Infective Bowel Disease;

d. Ischemic Bowel Syndrome

*Answer*: (b)

**5. Rome criteria will help in the diagnosis of**

a. Irritable Bowel Syndrome;

b. Inflammatory Bowel Disease;

c. Ulcerative colitis;

d. Crohn's disease

*Answer*: (b)

**6. Inflammatory Bowel Disease is a disease of**

a. Stomach;

b. Small intestine;

c. Large intestine;

d. None of the above

*Answer*: (c)

**7. As per Rome criteria, the duration of abdominal pain should persist for**

a. 3 days to 3 months;

b. 7 days to 2 months;

c. 15 to 20 days;

d. 1 to 6 months

*Answer*: (a)

**8. Irritable Bowel Syndrome begins at the age of**

a. 30 to 40 years;

b. 15 to 20 years;

c. 60 to 70 years;

d. 80 to 90 years

*Answer*: (b)

**9. Which of the following is having patchy appearance in pathological changes?**

a. Crohn's disease;

b. Ulcerative colitis;

c. Both a and b;

d. None of the above

*Answer*: (a)

**10. Crohn's disease and ulcerative colitis are categorised under**

a. Inflammatory Bowel Disease;

b. Irritable Bowel Syndrome;

c. Infective Bowel Disease;

d. Small Bowel Disease

*Answer*: (a)

**11. Most common part of the intestine involved in Crohn's disease is**

a. Jejunum;

b. Terminal ileum;

c. Descending colon;

d. Sigmoid colon

*Answer*: (b)

**12. Toxic megacolon is the complication of**

c. Crohn's disease;

b. Irritable Bowel Syndrome;

c. Ulcerative colitis;

d. Tropical sprue

*Answer*: (c)

**13. Malabsorption syndrome is caused by**

d. Crohn's disease;

b. Ulcerative colitis;

c. Both a and b;

d. None of the above

*Answer*: (a)

14. Ulcerative colitis begins from which part of the large intestine?

a. Rectum;

b. Sigmoid colon;

c. Descending colon;

d. Transverse colon

*Answer*: (a)

15. Aerophagia is one of the differential diagnosis for the diagnosis of

a. Functional dyspepsia;

b. Ulcerative dyspepsia;

c. Inflammatory bowel disease;

d. Irritable bowel syndrome

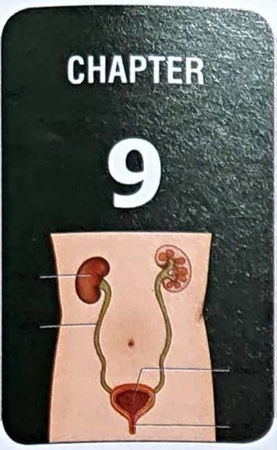
*Answer*: (a)

### Chapter resources

- https://patient.gastro.org/dyspepsia/
- https://thegidocs.com/peptic-ulcer-and-non-ulcer-dyspepsia/
- https://my.clevelandclinic.org/health/diseases/4342-irritable-bowel-syndrome-ibs
- https://www.drugwatch.com/health/digestive-health/crohns-disease/
- https://mydr.com.au/gastrointestinal-health/ulcerative-colitis/
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Cecil's medicine edited by Lee Goldman and Dennis Ausiello, 23rd edition, Saunders Elsevier publications, Philadelphia, 2007
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4531982/

***

## CHAPTER
## 9



# Mutrakrichra

**Learning Objectives**

- ⇨ To understand the concept of Mutrakrichra
- ⇨ To understand the Nidana Panchaka of Mutrakrichra mentioned in Ayurveda literatures
- ⇨ To frame out the possible Samprapti Ghataka based on the progression of the disease

## Introduction

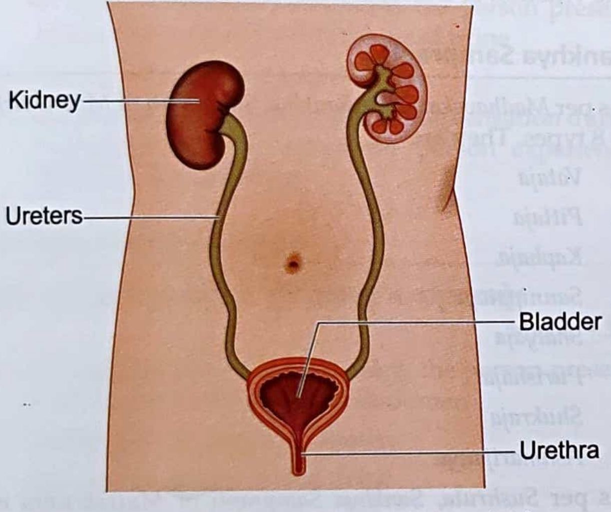


**Figure 18 :** Pratyatma Lakshana of Mutrakrichra

*Mutra* is considered to be one of *Mala* (waste product generated inside the body) which is liquid in nature. This is excreted to the exterior at regular intervals. This is produced in the body as an end product of the metabolism. As per *Ayurveda* understanding, *Mutra* is formed out of Anna (consumed food) along with *Purisha* (faeces).

Due to various reasons may be structural or functional, the adequate amount of *Mutra* is not passed. When an individual facing difficulty in passing the urine to the exterior is termed as *Mutrakrichra*[1].

This discomfort can be present either in the form of difficulty in micturition or reduced amount of micturition in a day or pain during micturition. As per current understanding, the patient having disturbances in urethra or urinary bladder or ureter or kidneys may present with difficulty in micturition.

मूत्रकृच्छ्राणीति मूत्रस्य कृच्छ्रेण महता दुःखेन प्रवृत्तिः।
Madhu, Ma.Ni. – 30/1,2

-मूत्रकृच्छ्रे कृच्छ्रत्वमतिशयितं, Madhu, Ma.Ni. – 31/1,2

**The term Mutrakrichra comprises of two words –** *Mutra* and *Krichra*. The term *Mutra* refers to urine and *Krichra* refers to difficulty. If we add the two words, it means the difficulty or pain during micturition. As per *Madhukosha* commentary of *Madhava Nidana*, the person will have very severe discomfort while micturition in the case of *Mutrakrichra*.

## Nidana of Mutrakrichra

व्यायामतीक्ष्णौषधरूक्षमद्यप्रसङ्ग नित्यद्रुत पृष्ठयानात्।
आनूपमसाध्यशनादजीर्णात्स्युर्मूत्रकृच्छ्राणि नृणां तथा-ऽष्टौ॥1।
Ma.Ni. – 30/1

- **Vyayama**[2]: excess exercise
- **Tikshnoushadha**[3]: consumption of high potent or corrosive medicines

---

[1] Disturbances in any of the above parts may lead to difficulty in micturition.

[2] When an individual performs more amount of exercise, that will be responsible for the increased blood flow to skeletal muscles and there will be hypoperfusion of the kidneys, thus leading to the less amount of urine formation.

[3] Frequent consumption of highly potent medicines are responsible for the inflammation of gastrointestinal compartment. This will lead to the shift of the fluid from the intravascular compartment to alimentary canal compartment. Thus the person may develop hypovolemic shock which in turn leads to poor formation of urine.

- **Ruksha**[4]: excess consumption of dry substances
- **Madya:** excessive consumption of alcohol or intoxicating substances
- **Prasanga**[5]: excessive sexual intercourse
- **Nityadruta**[6]: excessive walking daily
- **Nityaprishthayana** – travelling for longer distance daily
- **Anupa Mamsa**[7]: excess consumption of meat of marshy animals
- **Adhyashana**[8]: excess consumption of food substances without complete digestion of previously ingested meals
- **Ajirna** [9]: indigestion of food

## Samprapti of Mutrakrichra

पृथङ्मलाः स्वैः कुपिता निदानैः सर्वेऽथवा कोपमुपेत्य बस्तौ।
मूत्रस्य मार्ग परिपीडयन्ति यदा तदा मूत्रयतीह कृच्छ्रात्॥2॥

Ma.Ni. – 30/2

- Due to the exposure to etiological factors, respective *Dosha* get vitiated in various degrees.
- These vitiated *Dosha* will travel to the *Basti* region.
- When the person passes urine at this juncture will be presented with pain or discomfort or burning or incomplete micturition. In other words, he will have difficulty in micturition.

## Samprapti Ghataka

- **Dosha :** *Vata Pradhana* (*Apanavata*) can be associated with other physical *Dosha* i.e. *Pitta* or *Kapha*
- **Dushya :** *Mutra*
- **Srotas :** *Mutravaha Srotas*
- **Srotodushti :** *Sanga* and *Vimargagamana*
- **Agnimandya :** *Jatharagnimandya*
- **Ama : Jatharagnimandyajanya Ama**
- **Udbhava Sthana :** Pakvashaya
- **Sanchara Sthana :** Mutravaha Srotas
- **Vyakta Sthana :** *Medhra, Mutramarga, Yoni, Kukshi, Kati*
- **Rogamarga** : *Madhyama* (as *Basti* is involved)
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*

**Purvarupa of Mutrakrichra:** *Purvarupa* of the disease *Mutrakrichra* is not described in *Ayurveda* textbooks.

## Pratyatma Lakshana (Cardinal feature) of Mutrakrichra

मूत्रकृच्छ्राणीति मूत्रस्य कृच्छ्रेण महता दुःखेन प्रवृत्तिः।

Madhu, Ma.Ni. – 30/1,2

मूत्रकृच्छ्रे कृच्छ्रत्वमतिशयितं,

Madhu, Ma.Ni. – 31/1,2

When an individual is presented with difficulty in passing the urine such a clinical presentation is termed as *Mutrakrichra*. The nature of difficulty could be either pain during the passage of urine or there will be burning sensation during micturition or the person may pass whitish coloured urine. The discomfort may be in the form of difficulty in commencement of micturition or the person may have passage of either flatus or faecal matter or semen or frank blood in the urine. All the *Lakshana* mentioned in this section need not be present while making the diagnosis of *Mutrakrichra*. Depending upon the vitiation of *Dosha*, the cardinal features may vary.

## Sankhya Samprapti

As per *Madhavakara*, the *Sankhya Samprapti* of *Mutrakrichra* is 8 types. They are

1. *Vataja*
2. *Pittaja*
3. *Kaphaja*
4. *Sannipataja*
5. *Shalyaja*
6. *Purishaja*
7. *Shukraja*
8. *Ashmarijanya*

As per *Sushruta*, *Sankhya Samprapti* of *Mutrakrichra* is 8 types.

1. *Vataja*
2. *Pittaja*

---

GK

[4] Excess consumption of Ruksha substances will manifest pathological events similar to the events occur in case of consumption of Tikshna medicines.

[5] When the couple indulges in increased sexual intercourse will be responsible for the entry of the microorganisms through urethral route resulting in urinary tract infection. Most of the cases, the cardinal feature is burning micturition. This is indicative of dominance of Pitta Dosha.

[6] The pathological mechanisms observed during this is similar to the effects observed in case of excessive Vyayama

[7] This will lead to the vitiation of Kapha Dosha in the body.

[8] This will lead to the vitiation of Kapha Dosha in the body.

[9] Normally, about 7 litres of secretions are secreted in the gastrointestinal tract from different glands present in the gastrointestinal tract from mouth to ileocaecal junction. Around 1.5 litres of the fluid portion comes from the oral cavity in the form of food supplement. Thus from 8 to 9 litres coming into the small intestine, 6.5 to 7.5 litres of the fluid are absorbed from the small intestine. When an individual is suffering from Ajirna, this will lead to hampered absorption of water from the alimentary canal and more amount of water will be excreted from the alimentary canal. Thus, the person may develop hypovolemic shock leading to hypoperfusion of the kidney. Thus, the person may have reduced urine formation.

3. *Kaphaja*
4. *Sannipataja*
5. *Abhighataja*
6. *Shakrit Janya* (*Purishaja*)
7. *Ashmarijanya*
8. *Sharkarajanya*

## Vataja Mutrakrichra

तीव्रार्ति रुग्वङ्क्षणबस्तिमेढ़े स्वल्पं मुहुर्मूत्रयतीह वातात्।
Ma.Ni. – 30/3

- During the act of micturition, the person presents with severe pain in the *Vankshana* (inguinal) region
- Severe pain in the urinary bladder
- Severe pain in the groin or genital region
- Patient voids little amount of urine in one frequency

## Pittaja Mutrakrichra

पीतं सरक्तं सरुजं सदाहं कृच्छ्रं मुहुर्मूत्रयतीह पित्तात्॥
Ma.Ni. – 30/3

- In *Pitta* dominant *Mutrakrichra,* the person presents with passage of yellowish coloured urine
- Passage of reddish coloured urine
- The person passes pain and burning sensation during micturition due to which the person experiences difficulty in micturition

## Kaphaja Mutrakrichra

बस्तेः सलिङ्गस्य गुरुत्वशोथौ मूत्रं सपिच्छं कफमूत्रकृच्छ्रे।
Ma.Ni. – 30/4

- In *Kapha* dominant *Mutrakrichra,* the person presents with heaviness of the lower abdomen
- Swelling in the lower abdomen
- The person passes turbid urine
- The person passes slimy urine

## Sannipataja Mutrakrichra

सर्वाणि रूपाणि तु सन्निपाताद्भवन्ति तत्कृच्छ्रतमं हि कृच्छ्रम्॥
Ma.Ni. – 30/4

- In this type, the person will be presented with the features of vitiation of all three *Dosha*
- All the clinical features are in severe form

## Shalyaja Mutrakrichra

मूत्रवाहिषु शल्येन क्षतेष्वभिहतेषु वा।
मूत्रकृच्छ्रं तदाघाताज्जायते भृशदारुणम्॥
वातकृच्छ्रेण तुल्यानि तस्य लिङ्गानि निर्दिशेत्। Ma.Ni. – 30/5,6
मूत्रवाहिषु शल्येन क्षतेष्वभिहतेषु च।
स्रोतःसु मूत्राघातस्तु जायते भृशवेदनः॥8॥
वातवस्तेस्तु तुल्यानि तस्य लिङ्गानि लक्षयेत्। Su.Ut. – 59/8,9

- If any injury occurs to *Mutravaha Srotas* then the person develops *Shalyaja Mutrakrichra.*
- This is considered to be severe in nature i.e. *Rogabala* (strength of the disease) is more than *Rogibala* (strength of the patient).
- The clinical features of *Shalyaja Mutrakrichra* mimics the features of *Vataja Mutrakrichra.*
- The person will be presented with absence of micturition associated with severe pain
- The clinical features of *Shalyaja Mutrakrichra* resemble the clinical features of *Vatabasti.* (*Vatabasti* is a variety of *Mutraghata*).

## Purishaja Mutrakrichra

शकृतस्तु प्रतीघाताद्वायुर्विगुणतां गतः॥6॥
आध्मानं वातशूलं च मूत्रसङ्गं करोति च। Ma.Ni. – 30/6,7
शकृतस्तु प्रतीघाताद्वायुर्विगुणतां गतः॥9॥
आध्मानं च सशूलं च सूत्रसङ्गं करोति हि। Su.Ut. – 59/9,10

- When the person does the suppression of urge of defaecation, this leads to the accumulation of faecal matter in the large intestine.
- This leads to the reverse movement of *Apana Vata* leading to the distension of the lower abdomen.
- There will be pricking type of pain manifested in an individual due to the vitiation of *Vata Dosha.*
- The person is unable to pass the urine leading to severe pain and difficulty in passing the urine. This clinical feature is said to be due to the vitiation of *Apanavata* and this *Vata* is controlling both the functions of micturition and defaecation.

## Shukraja Mutrakrichra

शुक्रे दोषैरुपहते मूत्रमार्गे विधाविते।
सशुक्रं मूत्रयेत्कृच्छ्राद्बस्तिमेहनशूलवान्॥ Ma.Ni. – 30/8
शुक्रं मलाश्चैव पृथक् पृथग्वा मूत्राशयस्थाः प्रतिवारयन्ति।
मूत्रं सशुक्रं कुरुते विबद्धम्॥42॥
स्तब्धश्च शूनो भृशवेदनश्च तयाहतं मेहनबस्तिशूलं तुद्येत बस्तिर्वृषणौ
च तस्य। Ca.Ci. – 26/42,43

- This type of *Mutrakrichra* occurs only in males. If a male does the suppression of *Shukra Vega,* then it leads to accumulation of *Shukra* and there will be vitiation of *Vata Dosha.*
- Vitiated *Vata Dosha* leads to the dryness of *Shukra* that turns out to be spermolith. (refer volume 1 written by the author to know the concept of spermolith)
- The person will pass the urine mixed with semen.
- The person will have the pricking type of pain in the

lower abdomen (*Basti*), genital organs, testicles

- Swelling of the genital organs

## Ashmarijanya Mutrakrichra

Ma.Ni. – 30/7

अश्मरीहेतु तत्पूर्वं मूत्रकृच्छ्रमुदाहरेत्॥7॥

कदम्बपुष्पाकृतिरश्मतुल्या लक्ष्णा त्रिपुट्यप्यथवाऽपि मृद्वी।
मूत्रस्य चेन्मार्गमुपैति रुवा मूत्रं रुजं तस्य करोति वस्तौ॥ 37॥
ससेवनी मेहनबस्तिशूलं विशीर्णधारं च करोति मूत्रम्।
मृद्धाति मे स तु वेदनात मुहुः शकृन्मुञ्चति मेहते च॥38॥
क्षोभात् क्षते मूत्रयतीह सासृक तस्याः सुखं मेहति च व्यपायात्।

Ca.Ci. – 26/37-39

- The person who is having accumulation of concentrated and residual urine, urine will be condensed and solidified, will have the development of *Ashmari* (stone in the urinary system).
- The stone resembles *Kadamba Pushpa* or any stone in appearance that is rough and dry in its surface.
- When this moves in the urinary tract, it may get stuck somewhere leading to obstruction to the passage of urine. The person may even get dribbling of urine depending on the size of *Ashmari* (urinary calculus).
- The person may have severe pain in loin, groin, pelvic, lumbar and genital regions.
- The urine flow out in very thin stream or double stream. Patient experiences severe pain in the genital region.

## Sharkarajanya Mutrakrichra

अश्मरी शर्करा चैव तुल्ये संभवलक्षणैः।
शर्कराया विशेषं तु श्रृणु कीर्तयतो मम॥11॥
पच्यमानस्य पित्तेन भिद्यमानस्य वायुना।
श्लेष्मणोऽवयवा भिन्नाः शर्करा इति संज्ञिताः॥12॥
हृत्पीडा वेपथुः शूलं कुक्षौ वह्निः सुदुर्बलः।
ताभिर्भवति मूर्च्छा च मूत्राघातश्च दारुणः॥13॥
मूत्रवेगनिरस्तासु तासु शाम्यति वेदना।
यावदन्या पुनर्नैति गुडिका स्त्रोतसो मुखम्॥14॥
शर्करासंभवस्यैतन्मूत्राघातस्य लक्षणम्।

Su.Ut. – 59/11-15

This type is specifically mentioned by *Sushruta.*

- The *Ashmari* (urinary stone) that is produced in the *Mutravaha Srotas* may break down into smaller pieces.
- *Ashmari* happens due to the influence of *Kapha Dosha* and undergoes *Pachana* due to the influence of *Pitta Dosha*. With the help of *Vata Dosha*, the stone gets dried up and turns brittle, and later breaks into small pieces or gravels and flows out with urine during micturition. This is termed as *Sharkara.*
- When these gravels pass in the urinary tract that leads to severe pain in the urinary bladder, pelvis and cardiac region. This is associated with tremors and weak digestive fire.
- The patient develops pain so severe that he may develop *Murcha* (altered state of consciousness) while passing urine.

What is the difference between *Ashmari* and *Sharkara*? This is the most important question asked by most of the *Ayurveda* learners.

**पित्तेन पच्यते वायुना शोष्यते, संधानं कफेनावलम्बनं संश्लेषः, अथवा कफ एव संधानं संधीयतेऽनेन इति व्युत्पत्त्या; एतेन पवनाद्विशोषणात् पित्तवातौ संधानरूपस्य कफस्य शोषत्वेन तौ शर्कराया हेतुत्वेनोक्तौ, पित्तेन पाचिता, वायुना शोषिता, श्लेष्मणा संघिता अश्मरी; ताभ्यां विमुक्तसंधाना शर्करा क्षरन्ती सती शर्करारूपा, क्षरन्तीति बस्तितः॥**

Madhukosha commentary, Ma.Ni. – 30/9-12

When we think about the pathogenesis of *Ashmari* and *Sharkara*, both are same. The *Pitta Dosha* is responsible for *Pachana*, *Vata Dosha* is responsible for dryness and *Kapha Dosha* is responsible for compactness. The difference in the pathogenesis of *Ashmari* and *Sharkara* is in involvement of *Kapha Dosha*. In *Ashmari*, *Kapha Dosha* will be bringing all smaller pieces together and in *Sharkara*, *Kapha Dosha* is not playing the role which will lead to the formation of smaller pieces and these smaller pieces are termed as *Sharkara.*

### Key points of the chapter

मूत्रकृच्छ्राणीति मूत्रस्य कृच्छ्रेण महता दुःखेन प्रवृत्तिः।

-मूत्रकृच्छ्रे कृच्छ्रत्वमतिशयितं,

Madhu, Ma.Ni. – 30/1,2

Madhu, Ma.Ni. – 31/1,2

- When an individual is presented with difficulty in the act of micturition, it could be in the form of pain during micturition or discomfort produced in the act of micturition or discolouration observed during micturition can be considered under the umbrella of Mutrakrichra.
- As far as Nidana of Mutrakrichra are considered, Vyayama, Tikshnoushadha, Rukshahara, Madya consumption, riding on animals or other vehicles, eating the flesh of aquatic animals, animals living in marshy places, over eating and indigestion are responsible for the manifestation of Mutrakrichra.
- Purvarupa, Upadrava and Asadhya Lakshana of the disease are not mentioned in Ayurveda textbooks.
- As far as Sankhya Samprapti of Mutrakrichra is concerned, 8 types of Mutrakrichra are mentioned in Madhava Nidana. They are Vataja, Pittaja, Kaphaja, Sannipataja, Shalyaja, Purishaja, Shukraja and Ashmarijanya.

## Self-Assessment: Questions for Reviews

### Short answer questions

- Explain the Samprapti and Samprpti Ghataka of Mutrakrichra
- Explain the types of Mutrakrichra
- Explain the Nidana and Samprapti of Mutrakrichra
- Explain Ashmarijanya Mutrakrichra

### MCQs

**1. Srotas afflicted in Mutrakrichra is**

a. Purishavaha; b. Mutravaha;
c. Raktavaha; d. All of the above

*Answer*: (b)

**2. Type of Srotodushti occurring in the patient of Mutrakrichra is**

a. Siragranthi;
b. Atipravritti;
c. Sanga and Vimargagamana;
d. Sanga and Siragranthi

*Answer*: (c)

**3. Sankhya Samprapti of Mutrakrichra is**

a. 4; b. 5;
c. 7; d. 8

*Answer*: (d)

**4. Types of Mutrakrichra as per Madhavakara is**

a. 4; b. 5;
c. 7; d. 8

*Answer*: (d)

**5. The term Kadamba Pushpa Akriti is related to which of the following type of Mutrakrichra?**

a. Kaphaja Mutrakrichra;
b. Shakrit Vighatajanya Mutrakrichra;
c. Ashmarijanya Mutrakrichra;
d. Pittaja Mutrakrichra

*Answer*: (c)

**6. As per Sushruta, the types of Mutrakrichra are**

a. 8; b. 6;
c. 13; d. 12

*Answer*: (a)

**7. Akriyayam Dhruvo Mrityuh, Kriyayam Samshayo Bhavet is the term used for**

a. Kandabhagna; b. Baddhagudodara;
c. Mudhagarbha; d. Ashmari

*Answer*: (d)

**8. The amount of urine passed in one frequency of micturition is approximately about**

a. 100 ml in one frequency;
b. 500 ml in one frequency;
c. 250 ml in one frequency;
d. 600 ml in one frequency

*Answer*: (c)

**9. The normal average amount of urine formed in 24 hours by a normal individual is**

a. 500 ml in 24 hours;
b. 100 ml in 24 hours;
c. 2500 ml in 24 hours;
d. 1200 ml in 24 hours

*Answer*: (d)

**10. When an individual suffering from colicky type of pain radiating from loin to groin may indicate the site of the lesion is in**

a. Urethra; b. Urinary bladder;
c. Glomerulus; d. Ureter

*Answer*: (d)

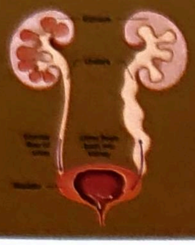
### Chapter References

- Madhava Nidana – 30th chapter – Mutrakrichra Nidana
- Charaka Samhita Chikitsa Sthana 26th chapter – Trimarmiya Chikitsa Adhyaya
- Sushruta Samhita Uttara Tantra 59th chapter – Mutrakrichra Pratishedha Adhyaya
- Yoga Ratnakara – Mutrakrichra Chikitsa
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.kramesstaywell.com

***

CHAPTER

10



# Mutraghata

## Learning Objectives

- ⇨ To learn the concept of Mutraghata
- ⇨ To know the Nidana Panchaka of Mutraghata mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To know the exact meaning of Mutra Shoshana and Mutra Pratihanana
- ⇨ To describe the different types of Mutraghata
- ⇨ To know the differences between Mutrakrichra and Mutraghata

## Introduction

'मूत्रकृच्छ्रे कृच्छत्वमतिशयितं, ईषद्विबन्धः; मूत्राघाते तु विबन्धो बलवान्, कृच्छ्रत्वमल्पमिति

Madhu, Ma.Ni. – 31/1

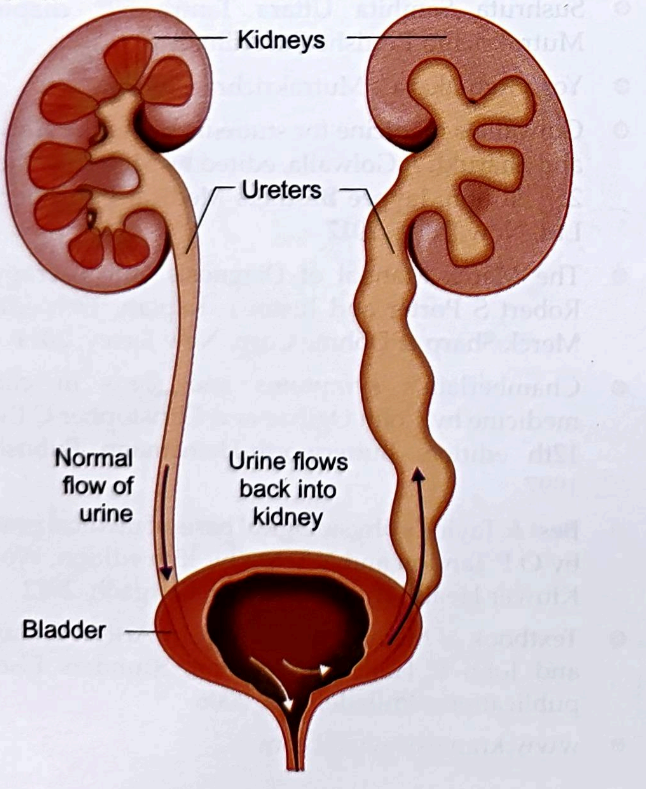


**Figure 19 :** Pratyatma Lakshana of Mutraghata

*Mutraghata* is a set of disease conditions where one can have less urine formation, but he will not have pain during micturition (*Mutrakrichra*) or the person may not have adequate urine output. *Charaka* says 13 types of *Mutraghata*. As per *Ayurveda* textbooks, the *Pramana* (amount) of *Mutra* formed in a day is 4 *Anjali Pramana.* As per the western physiology, the person will pass the urine once he gets the urge for micturition. Normally, an individual passes 200 – 250 ml of urine in one frequency of micturition. In *Mutraghata,* the person will have passage of less amount of urine[1]. Normally, an individual will pass the urine with a normal range of 600 – 2500 ml in 24 hours with an average formation of urine is about 1200 to 1500 ml in 24 hours. When the individual passes < 500 ml in 24 hours, the condition is termed as *oliguria* and when the individual passes < 100 ml in 24 hours, then the condition is termed as *anuria.*

## Nidana of Mutraghata

मूत्राघातो मूत्रावरोधः। Ma.Ni. – 31/1

'मत्रकृच्छ्रे कृच्छत्वमतिशयितं, ईषद्विबन्धः; मूत्राघाते तु विबन्धो बलवान्, कृच्छ्रत्वमल्पमिति।

Madhu, Ma.Ni. – 31/1

*Nidana* of *Mutraghata* as mentioned by *Madhavakara* are as follow:

- **Mutra Vegavidharana:** suppression of urge of micturition
- **Purisha Vegavidharana:** suppression of urge of

---

[1] Less amount of urine will be passed in the conditions such as prostate enlargement, bilateral ureteric calculi, chronic renal failure, conditions which lead to renal hypoperfusion.

defaecation

- **Shukra Vegavidharana:** suppression of urge of ejaculation[2]
- **Rukshashana**[3]: excess consumption of dry substances

**Purvarupa of Mutraghata:** As per *Ayurveda* textbooks, no *Purvarupa* are described in the context of *Mutraghata*.

## Pratyatma Lakshana of Mutraghata

मूत्राघातो मूत्रावरोधः।

Dalhana, Su.Ut. – 58/1,2

मुत्रकृच्छे कृच्छलमतिशयितं, ईषद्विबन्धः; मूत्राघाते तु विबन्धो बलवान्, कृच्छ्रलमल्पमिति।

Madhu, Ma.Ni. – 31/1

There are slight differences in the clinical understanding of *Mutrakrichra* and *Mutraghata*. As far as the cardinal feature of *Mutrakrichra*, there will be pain or discomfort during micturition where as in *Mutraghata*, the amount of urine passed in one frequency or in a day is reduced altogether. As per some other opinion, the term *Mutraghata* refers to complete absence of micturition.

## Sankhya Samprapti of Mutraghata

*Charaka* and *Madhavakara* mentioned 13 types of *Mutraghata*, whereas *Sushruta* has mentioned 12 types of *Mutraghata*.

| SN | Charaka | Sushruta | Madhavakara |
|---|---|---|---|
| 1 | Mutraukasada | Vatakundalika | Vatakundalika |
| 2 | Mutrajathara | Ashthila | Ashthila |
| 3 | Mutrakrichra | Vatabasti | Vatabasti |
| 4 | Mutrotsanga | Mutratita | Mutratita |
| 5 | Mutra Sankshaya or Mutrakshaya | Mutrajathara | Mutrajathara |
| 6 | Mutratita | Mutrotsanga | Mutrotsanga |
| 7 | Vatashthila | Mutrakshaya | Mutrakshaya |
| 8 | Vatabasti | Mutragranthi | Mutragranthi |
| 9 | Ushnavata | Mutra Shukra | Mutrashukra |
| 10 | Vatakundalika | Ushnavata | Ushnavata |
| 11 | Mutragranthi | Pittaja Mutroukasada | Mutrasada |
| 12 | Vid Ghata | Kaphaja Mutroukasada | Vid Vighata |
| 13 | Bastikundala | | Bastikundalika |

## Sampraphti Ghataka of Mutraghata

**Dosha** : *Vata Pradhana; Pitta* and *Kapha* association

**Dushya** : *Mutra*

**Srotas :** *Mutravaha Srotas*

**Srotodushti Prakara :** *Sanga* and *Vimargagamana*

**Udbhava Sthana :** *Pakvashaya*

**Sanchara Sthana :** *Sarvasharira*

**Vyakta Sthana** : *Basti* and *Upastha*

**Adhishthana :** *Basti*

**Vyadhyavastha** : *Asadhya*

## Vatakundalika

रौक्ष्याद्वेगविघाताद्वा वायुर्वस्तौ सवेदनः।
मूत्रमाविश्य चरति विगुणः कुण्डलीकृतः॥2॥
मूत्रमल्पाल्पमथवा सरुजं संप्रवर्तते।
वातकुण्डलिकां तां तु व्याधिं विद्यात्सुदारुणम्॥3॥ Ma.Ni. – 31/2,3

- *Vatakundalika* manifests in an individual due to suppression of urge of micturition[4]. This is leading to the increase of *Ruksha* (dry) quality in the body. This phenomenon leads to the vitiation of *Apanavata*.
- The person presents with pain in the *Basti* (lower abdomen) region.

---

[2] When an individual is suppressing these natural urges, there will be a vitiation of Apanavata initially. Vitiated Apanavata causes the reverse movement of Vata and thereby afflicts Samanavata which leads to the affliction of the Pranavata at the end. When there is affliction of Apanavata is observed, all functions related to Apanavata will be compromised – be it micturition or defecation etc. The vitiated Apanavata even may lead to the abnormal movement of Shukra in males and Artava in females also.

[3] When an individual consumes more amount of Ruksha (dry) substances, that will lead to excess transport of fluid from intravascular compartment into alimentary canal compartment in the form of alimentary secretions. Thus, when an individual makes the habit of consuming more amount of Ruksha substances, that will lead to the gradual shrinkage of intravascular compartment, and when an individual develops renal hypoperfusion, then he will suffer from reduced urine formation.

[4] बस्तिमेहनयोः शूलं मूर्षकृच्छ्रं शिरोरुजा। विनामो बंक्षणानाहः स्याहितं मूत्रनिग्रहे॥ 6॥ Ca.Su. – 7/6

The clinical features observed during the suppression of micturition are pricking type of pain in the urinary bladder and penis; difficulty in micturition; headache; forward bending of the body because of pain in lower abdomen and distesion of the lower abdomen.

Micturition reflex is a completely autonomic spinal reflex, when an individual neglects the urge of micturition, then urination will not occur until the bladder fills still further and the micturition reflex becomes much stronger.

- As the person is suppressing the urge of micturition, this will lead to the constriction of urethral sphincter due to the activation of sympathetic nervous system.
- This will lead to the accumulation of urine in the urinary bladder and later there will be accumulation of urine in the ureter and renal pelvis.
- This will lead to the severe pain in the lower abdomen.
- This may be observed as a result of suppression of urge of micturition.

- Upward movement of *Apanavata* and downward movement of *Mutra* during filling leads to the production of whirlpool inside the bladder.
- This phenomenon is called *Vatakundalika* which gives severe, intolerable and spasmodic pain the urinary bladder region.
- As *Mutra* moves in circular form inside the *Basti*, there is no excretion of urine.

## Ashthila

आध्मापयन्बस्तिगुदं रुद्ध्वा वायुश्च लोन्नताम्।
कुर्यात्तीवार्तिमष्ठीलां मूत्र विण्मार्गरोधिनीम्॥4॥ Ma.Ni. – 31/4

- In the area[5] between *Guda* and *Basti*, the vitiated *Apanavata* produces a hard stony mass.
- This hard mass will enlarge in size and in due course of time, this swelling obstructs the passage of urine, aching type of pain in genital organs and hypogastric region.
- This is called *Ashthila*, sometimes it is also called *Vatashthila*.

## Vatabasti[6] [7]

वेगं विधारयेद्यस्तु मूत्रस्याकुशलो नरः।
निरुणद्धि मुखं तस्य बस्तर्बस्तिगतोऽनिलः॥5॥
मूत्रसङ्गो भवेत्तेन वस्तिकुक्षिनिपीडितः।
वातबस्तिः स विज्ञेयो व्याधिः कृच्छ्रप्रसाधनः॥6॥ Ma.Ni. – 31/5,6

- When the person suppresses the urge of micturition for long period of time, the bladder muscles lose their tonicity. The urethral opening gets closed due to *Apana Vata* vitiation.
- Due to the closure of outlet of urine transport, the suffering individual is not in a position to pass urine. Hence, urine gets obstructed and remains inside bladder.
- This condition produces pain and discomfort in severe form. This is called *Vatabasti*.

## Mutra Atita[8]

चिरं धारयतो मूत्रं त्वरया न प्रवर्तते।
मेहमानस्य मन्दं वा मूत्रातीतः स उच्यते॥7॥ Ma.Ni. – 31/7

- In this condition, the person who does the suppression of Mutravega i.e. urge of micturition for a certain period, later he attempts to void the urine, it may not be possible to excrete the urine.
- Therefore, the person strains or exerts more pressure to void the urine to initiate the act of micturition, but fails.
- When the person still exerts more pressure from abdomen, he may develop mild pain and may pass urine in little quantity after long continuous effort.
- Thus, *Mutratita* is a clinical condition where the patient pass the scanty, dribbling of urine after long continuous straining for micturition associated with pain.

## Mutra Jathara[9]

सूत्रस्य वेगेऽभिहते तदुदावर्तहेतुकः।
अपानः कुपितो वायुरुदरं पूरयेद्धशम्॥8॥
नाभेरधस्तादाध्मानं जनयेत्तीत्रवेदनम्।
तन्मूत्रजठरं विद्यादधोबस्ति निरोधनम्॥9॥ Ma.Ni. – 31/8,9

- Due to suppression of urge of micturition, the urine stays in *Basti* or urinary bladder. If the person still continues to supress the urge of micturition the accumulation of urine in urinary bladder continues. Thus, the size of urinary bladder goes on increasing as the accumulation of urine continues and the patient still supress the urge of micturition.
- The distension of urinary bladder reaches the level of umbilicus and distension will be visible externally. This is associated with severe abdominal pain. In this condition, the person will have obstruction to the passage of urine.

---

GK

[5] In males, the organ situated between rectum and bladder is prostate. If there is any enlargement of prostate is observed, then the person may have oliguria or anuria.
- This condition usually afflicts elderly individuals.
- The person may complain of vague discomfort or fullness in the perneal or rectum area. The person may also complain of urgency (urgency for micturition, hesitancy (delay in intialisng the micturition), intermittency (discontinuous flow of micturition). There may be also complaints of hematuria in some of the occasions.
- Ideal examination performed in the assessment of prostate is per rectal examination. While doing this examination, we have to check the size of swelling, consistency, surface and mobility of the rectal mucosa over prostate should be analysed.

[6] This can be attributable to atonic bladder which results as a result of suppression of micturition for longer period of time.

[7] In this situation, the person will have the suppression of urge of micturition for longer period of time. In this instance, the person will have loss of tone of the urinary bladder for a transient period.

[8] In this condition, the person will have suppression of the urge of micturition, this will lead to the loss of tonicity of the urinary bladder. This will lead to stretching of the urinary bladder. When the next urge of micturition comes, it will come much stronger and more painful too. We can say it could be advanced stage of Vatabasti.

[9] In this situation, the person will have the habit of suppressing the urge of micturition, this will lead to the loss of tonicity of urinary bladder. Further, it will lead to distension of the urinary bladder and thence distension of ureters and later distension of the renal pelvis of both kidneys occur. This can be identified by swelling of suprapubic region. It may associate with severe abdominal pain, forward bending of the body and profuse sweating of the body.

## Mutra Utsanga[10]

वस्तौ वाऽप्यथवा नाले मणौ वा यस्य देहिनः।
मूत्रं प्रवृत्तं सज्जेत सरक्तं वा प्रवाहतः॥10॥
स्त्रवेच्छनैरल्पमल्पं सरुजं वाऽथ नीरुजम्।
विगुणानिलजो व्याधिः स मूत्रोत्सङ्गसंज्ञितः॥11॥ Ma.Ni. – 31/10,11

- In this clinical condition, due to the damage to the urinary bladder, urethra or chronic wound in the genitals the urethral channel becomes narrowed.
- Urine will pass with difficulty and dribbling of urine is seen. It may or may not be associated with pain. Sometimes, the urine is passed with blood.

## Mutra Kshaya[11]

रूक्षस्य क्लान्तदेहस्य बस्तिस्थौ पित्तमारुतौ।
मूत्रक्षयं सरुग्दाहं जनयेतां तदाह्वयम्॥12॥ Ma.Ni. – 31/12

- Due to emaciated body or increase of *Ruksha* (dry) quality of the body, there will be vitiation of *Pitta* and *Vata* in the *Basti* region.
- This is responsible for the decreased formation of urine and this is associated with burning sensation and severe pain.

## Mutra Granthi[12]

अन्तर्बस्तिमुखे वृत्तः स्थिरोऽल्पः सहसा भवेत्।
अश्मरीतुल्यरुग्ग्रन्थिर्मूत्रग्रन्थिः स उच्यते॥13॥ Ma.Ni. – 31/13

- In this clinical condition, there will be small, spherical, stable mass or cyst. This is seen inside the urinary bladder, near the opening.
- This obstructs the passage of urine out of the urinary bladder.

## Mutra Shukra[13]

मूत्रितस्य स्त्रियं यातो वायुना शुक्रमुद्धतम्।
स्थानाच्युतं मूत्रयतः प्राक् पश्चाद्वा प्रवर्तते॥14॥
भस्मोदकप्रतीकाशं मूत्रशुक्रं तदुच्यते। Ma.Ni. – 31/14,15

- When the person develops the urge of micturition, in stead of voiding the urine if the person withholds and performs the sexual act, then there will be *Dushti* of *Shukravaha Srotas*.
- In this clinical condition, the urine is mixed with *Shukra* (semen) or the person may void *Shukra* followed with the flow of urine.
- The urine becomes thick and turbid and the colour resembles the colour of *Bhasmodaka* i.e. colour of water mixed with ash.

## Ushnavata[14]

व्यायामाध्वातपैः पित्तं वस्तिं प्राप्यानिलान्वितम्॥15॥
बस्ति मेदं गुदं चैव प्रदहेत्स्त्रावयेदधः।
मूत्रं हारिद्रमथवा सरक्तं रक्तमेव वा॥16॥
कृच्छ्रात्पुनः पुनर्जन्तोरुष्णवातं ब्रुवन्ति तम्। Ma.Ni. – 31/15-17

- Due to the excessive physical exertion under hot sun, there will be increase of *Pitta* and manifestation of excessive sweating.
- Due to this mechanism, the person will pass little amount of concentrated urine.
- The person is presented with severe pain in the urinary bladder, genital, anus.
- The person may pass yellowish or reddish coloured urine or sometimes he may pass frank blood itself.

## Mutra Sada[15]

पित्तं कफो द्वावपि वा संहन्येते ऽनिलेन चेत्॥17॥
कृच्छ्रान्मूत्रं तदा पीतं श्वेतं रक्तं धनं सृजेत्।
सदाहं रोचनाशङ्खचूर्णवर्ण भवेत्तु तत्॥18॥
शुष्कं समस्तवर्ण वा मूत्रसादं वदन्ति तम्। Ma.Ni. – 31/17-19

- In this clinical condition, the person may pass yellowish, whitish or reddish discolouration of urine and density of urine is increased associated with burning sensation during micturition.
- When the urine is dried, the urine will have the appearance of powder of *Gorochana* (ox bile) in case of *Pitta* dominance and in case of *Kapha* dominance, the colour will be similar to the colour of *Shankha* (conch) when urine sample is made to dry.

---

[10] This may occur in the individual due to the damage to the urinary bladder or urethral stricture or wound to the genitals. As the diameter of the urethra is narrowed, this may lead to poor flow of urine to the exterior.

[11] In this clinical condition, the person may have renal hypoperfusion which in turn leads to the less formation of urine.

[12] This can be attributable to the bladder outlet obstruction which may occur as a result of either prostatomegaly or swelling occluding the urethra or urinary bladder, near the trigone area of bladder.

[13] In this condition, the presence of semen or sperms can be seen in the urine. This condition can be observed in the conditions of retrograde ejaculation.

[14] In this clinical condition, the person will have excess exposure to sunlight and there will be extreme sweating. This occurs due to the extreme heat produced in the body which leads to the shrinkage of the intravascular compartment. This will lead to the renal hypoperfusion which leads to the less formation of urine. In some of the occasions, the person may pass dark coloured urine and this can be attributable to poor glomerular filtrate..

[15] When the specific gravity of the urine is abnormally increased, there may be the presence of casts and crystals in the urine sample. This may be observed in case of dehydration or any condition where renal blood supply is compromised.

## Vid Vighata[16]

रूक्षदुर्बलयोर्वातेनोदावृत्तं शकृद्यदा॥19॥
मूत्रस्रोतोऽनुपद्येत विट्संसृष्टं तदा नरः।
विड्गन्धं मूत्रयेत्कृच्छ्राद्विविघातं विनिर्दिशेत्॥20॥

Ma.Ni. – 31/19,20

- The person who is physically weak or who is having excess *Ruksha* (dry) quality in the body, this type of *Mutraghata* is seen.
- Initially, the person is presented with constipation which results in reverse movement of *Vata i.e. Udavarta*.
- Movement of faecal matter from *Purishavaha Srotas* to *Mutravaha Srotas*. This leads to the appearance of faecal matter in the urine, whenever the person gets the urge of micturition. The person may have faeculent smell in the urine due to the presence of faecal matter in the urine.

## Bastikundala[17]

द्रुताध्वलङ्घनायासैरभिघातात्मपीडनात्।
स्वस्थानाद्बस्तिरुद्वृत्तः स्थूलस्तिष्ठति गर्भवत्॥21॥
शूलस्पन्दनदाहात बिन्दु बिन्दु स्त्रवत्यपि।
पीडितस्तु सृजेद्धारां संस्तम्भोद्वेष्टनार्तिमान्॥22॥
वस्तिकुण्डलमाडुस्तं घोरं शस्त्रविषोपमम्।
पवनप्रबलं प्रायो दुर्निवारमबुद्धिभिः।

Ma.Ni. – 31/21-23

स्याद्वस्तौ कुण्डलीभूते तृण्मोहः श्वास एव च॥25॥ Ma.Ni. – 31/25

- This clinical condition usually manifests when the person does excess walking, excess measures which lead to lightness of the body; excess debilitating physical exercises, trauma to the *Basti* region; squeezing in the *Basti* region.
- The person is presented with pricking type of pain, regular rhythmic movements, burning sensation and the urine flow will be like drop by drop.
- The person may also present with micturition which will be like thin stream of urine flow and it is associated with stiffness of body parts and muscle cramps.
- This disease is *Vata* dominant disease.

## Sadhyasadhyata of Mutraghata

स्याद्वस्तौ कुण्डलीभूते तृण्मोहः श्वास एव च॥25॥

Ma.Ni. – 31/24

- If the *Kapha Dosha* is associated with bladder neck[18], if *Pitta* vitiation is observed in a disease progression and if the urine is moving in the urinary bladder in circular fashion then such a disease is considered as *Asadhya* (incurable) in nature.
- If there is no involvement of morbid *Vata*, then such a disease is considered as *Sadhya* (curable) in nature.

### Key points of the chapter

Dalhana, Su.Ut. – 58/1,2

मूत्राघातो मूत्रावरोधः।

Madhu, Ma.Ni. – 31/1

- मत्रकृच्छे कृच्छत्वमतिशयितं, ईषद्विबन्धः; मूत्राघाते तु विबन्धो बलवान्, कृच्छ्रत्वमल्पमिति।
- Mutraghata is the spectrum of clinical conditions where we can observe formation of decreased amount of urine in a day. Normally, 200 to 250 ml of urine is passed in one frequency and 1200 to 1500 ml of urine is formed in 24 hours. If the amount is less than 500 ml in 24 hours, the clinical condition is termed as oliguria and if the amount of passed in 24 hours is less than 100 ml/ day, then such clinical condition is termed as anuria. This clinical condition may manifest as a result of obstruction in the urethra, bladder neck, bilateral ureters or poor blood supply to the kidneys and clinical conditions afflicting the kidneys.
- In Mutrakrichra, the person will have difficulty in micturition and in case of Mutraghata, the amount of urine formed in a day is hampered significantly. This is one of the major difference between Mutrakrichra and Mutraghata.

---

[16] When an individual is having the habit of chronic constipation, that will lead to absorption of water in the faecal matter. Normally, faecal matter contains 75% of the water portion and 25% of the solid food residue.
- When the person is suppressing the urge of defaecation intentionally for longer time, this will lead to the activation of sympathetic nervous system. When this is activated, that will lead to the constriction of the sphincter and this will also lead to the constriction of urethral sphincter.
- This will lead to the hampered urine formation.

[17] When an individual is exposed to such kind of measures which leads to the excess metabolism in the body such as excess walking or measures leading to the lightness of the body, will lead to shrinkage of intravascular compartment. This in turn may lead to the shrinkage of interstitial as well as intracellular compartments.
- This will lead to the renal hypoperfusion and thus the person may have less urine formation.
- As there is excess metabolism in the body, there is metabolic acidosis and there will be electrolyte imbalance due to sodium ions loss along with dehydration. This may lead to muscle cramps of the calf muscles or abdominal muscles too.

[18] When there is bladder neck obstruction, we have to think two possibilities either it could be prostatomegaly or urethral stone impaction at the level of bladder neck. If this is not taken care of, then the person may have acute retention of urine.

- No specific Nidana (aetiological factors) for the manifestation of Mutraghata is Ayurveda textbooks. But, Madhukosha commentary in the context of description of Mutraghata, he has described Mutra, Purisha, Shukra Vegadharana and Rukshapana are considered as Nidana of Mutraghata.
- As far as Sankhya Samprapti of Mutraghata is concerned, Charaka and Madhavakara has mentioned 13 types of Mutraghata and Sushruta has mentioned only 12 types of Mutraghata. 13 types of Mutraghata are Vatakundalika, Ashthila, Vatabasti, Mutratita, Mutra Jathara, Mutrotsanga, Mutrakshaya, Mutragranthi, Mutrashukra, Ushnavata, Mutrasada, Vid Vighata, Bastikundala as per Madhavakara.
- Mutraghata is a disease manifested due to the affliction of Apanavata with the involvement of Mutra, afflicting Mutravaha Srotas with Sanga and Vimargagamana as the type of Srotodushti involved in the progression of the disease. Pakvashaya is the Udbhava Sthana of the disease, Sanchara Sthana is Sarvasharira as the clinical features of Mutraghata can be observed all over the body and Vyakta Sthana of the disease is Basti and Upastha.

## Self-Assessment: Questions for Reviews

### Long essays

- Long essay questions in this section are rare.

### Short essays

- Explain the Samprapti Ghataka of Mutraghata
- Explain the types of Mutraghata
- Explain Ushnavata

### MCQs

1. **Which of the following is included in the types of Mutraghata.**

    a. Shitapitta; b. Amavata;
    c. Ushnavata; d. Amlapitta

*Answer*: (c)

2. **Mutrakshaya, Mutrajathara and Mutraukasada are the types of**

    a. Mutrakrichra; b. Mutraghata;
    c. Ashmari; d. Mutravriddhi

*Answer*: (b)

3. **Sankhya Samprapti of Mutraghata as per Sushruta is**

    a. 13; b. 12;
    c. 8; d. 2

*Answer*: (b)

4. **Which of the following is not the type of Mutraghata?**

    a. Ashmarijanya; b. Mutrakshaya;
    c. Bastikundala; c. Ushnavata

*Answer*: (a)

5. **Type of Srotodushti observed in Mutraghata is**

    a. Sanga;
    b. Sanga and Vimargagamana;
    c. Atipravritti;
    d. Siragranthi

*Answer*: (b)

6. **Vatakundalika is a .............. Roga.**

    a. Vataja; b. Mutraja;
    c. Amaja; d. Kshudra

*Answer*: (b)

7. **Ushnavata is a type of**

    a. Mutrakrichra; b. Mutraghata;
    c. Ashmari; d. Sharkara

*Answer*: (b)

8. **Mutraghata is**

    a. Retention of urine;
    b. Suppression of urine;
    c. Retention and suppression of urine;
    d. None of the above

*Answer*: (c)

9. **Character of Mutra in Mutrashukra is**

    a. Sarakta;
    b. Haridra Varna;
    c. Bhasmodaka Pratikasha;
    d. Nila Varna

*Answer*: (c)

10. **Types of Mutraghata mentioned in Charaka Samhita in**

    a. Sutra Sthana;
    b. Chikitsa Sthana;
    c. Siddhi Sthana;
    d. Nidana Sthana

*Answer*: (c)

11. **In case of anuria, the amount of urine passed in 24 hours will be less than**

    a. 100 ml;
    b. 500 ml;
    c. 1,000 ml;
    d. 3,000 ml

*Answer*: (a)

12. **The Srotas afflicted in the disease Mutraghata is**

    a. Mutravaha Srotas;
    b. Mamsavaha Srotas;

c. Majjavaha Srotas;
d. Raktavaha Srotas

*Answer*: (a)

**13. Types of Mutraghata as per Madhavakara is**

a. 13; b. 12;
c. 8; d. 3

*Answer*: (a)

**14. The amount of urine passed in one frequency of micturition is**

a. 120 ml; b. 250 ml;
c. 500 ml; d. 750 ml

*Answer*: (b)

**15. Description of Mutraghata in Sushruta Samhita is available in**

a. Nidana Sthana; b. Chikitsa Sthana;
c. Uttara Tantra; d. Kalpa Sthana

*Answer*: (c)

**16. As per Madhavakara, Mutragahta is diagnosed by**

a. Ishat Mutra Vibandha;
b. Adhika Mutra Vibandha;
c. Adhika Mutra Krichratva;
d. Ishat Mutra Krichratva

*Answer*: (b)

**17. Which of the following symptom is not seen in the patients of prostatic enlargement?**

a. Hesitancy;
b. Intermittency;
c. Burning micturition;
d. Continuous flow of urine

*Answer*: (d)

**18. Which of the following term is used in case of the amount of urine < 500 ml is passed in 24 hours?**

a. Oliguria; b. Anuria;
c. Nocturia; d. Polyuria

*Answer*: (a)

**19. Which of the following feature will be absent in the patient suffering from acute retention of urine?**

a. Swelling of the suprapubic region;
b. Forward bending of the body;
c. Profuse sweating all over the body;
d. Increased frequency of micturition

*Answer*: (d)

**20. Which of the following region where swelling is observed in the case of acute retention of urine primarily?**

a. Epigastric region;
b. Hypogastric region;
c. Hypochondriac region;
d. Umbilical region

*Answer*: (b)

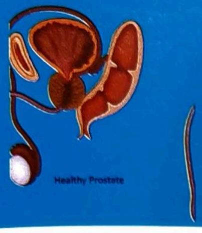
## Chapter resources

- Madhava Nidana, 31st chapter – Mutraghata Nidana Adhyaya
- Sushruta Samhita, Uttara Tantra – 58th chapter, Mutraghata Pratishedha Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.tamc.co.il

***

CHAPTER

11



# Common Urinary Diseases

## Learning Objectives

- ⇨ To learn about brief pathophysiology of urinary diseases
- ⇨ To learn about the causes, clinical features of urinary tract infection (UTI), prostatomegaly, nephrotic syndrome, nephritic syndrome, acute kidney injury, chronic kidney disease (CKD)
- ⇨ To learn the method of physical examination in above said diseases for the diagnosis
- ⇨ To make the interpretation of laboratory investigations in above said diseases

## Introduction

Excretory system is one of the major system, primarily functions as the eliminator of the metabolites formed in the body. It has associated functions such as regulation of blood pressure of the body, maintaining the haemoglobin concentration etc. This system has kidney and ureter one on both sides, a urinary bladder and urethra. Each of the organ afflicted may produce typical symptoms. For example, affliction of the kidney may show increased frequency of micturition, haematuria; affliction of ureter may have pain which radiates from loin to groin; affliction of urinary bladder may be associated with pain in the lower abdomen, haematuria; affliction of urethra may be associated with burning micturition.

- Clinical symptoms of these disorders will depend upon the pathophysiology of renal injury and will often initially identified as a complex of symptoms, abnormal physical examination findings and laboratory changes that together make possible the identification of specific syndromes. These renal syndromes may arise as the consequence of a systemic illness or can occur as a primary renal disease.
- The duration and severity of the disease will affect these findings and typically include one or more of the following:
  - ➤ Disturbances in urine volume (oliguria, anuria or polyuria)
  - ➤ Abnormalities of urinary sediments (RBCs, WBCs, casts and crystals)
  - ➤ Abnormal excretion of serum proteins
  - ➤ Reduction in glomerular filtration rate (GFR) i.e. azotemia
  - ➤ Presence of hypertension and/ or expanded total body volume (oedema)
  - ➤ Electrolyte abnormalities
  - ➤ Fever/ pain in some of the occasions
- Carefully, above factors should be evaluated thoroughly to make the accurate diagnosis of renal disease.

## Urinary Tract Infection

Urinary tract infections **(see Figure 20)** are the group of diseases where microorganisms afflict the urinary tract. This can start either from the kidney or through urethra. These are characterized by increased frequency of micturition, burning sensation during micturition, pain in the back or pain in the flank, pain in the supra pubic region, haematuria. Urinary tract infections can spread to other organs of the urinary tract i.e. from kidney to urethra or vice versa.

**Causes:**

- Septicemia
- Excess sexual intercourse with infected individuals
- Any conditions which is responsible for the retention of urine such as prostatomegaly or urethral stricture or occlusion of urinary calculus or cystocele in females

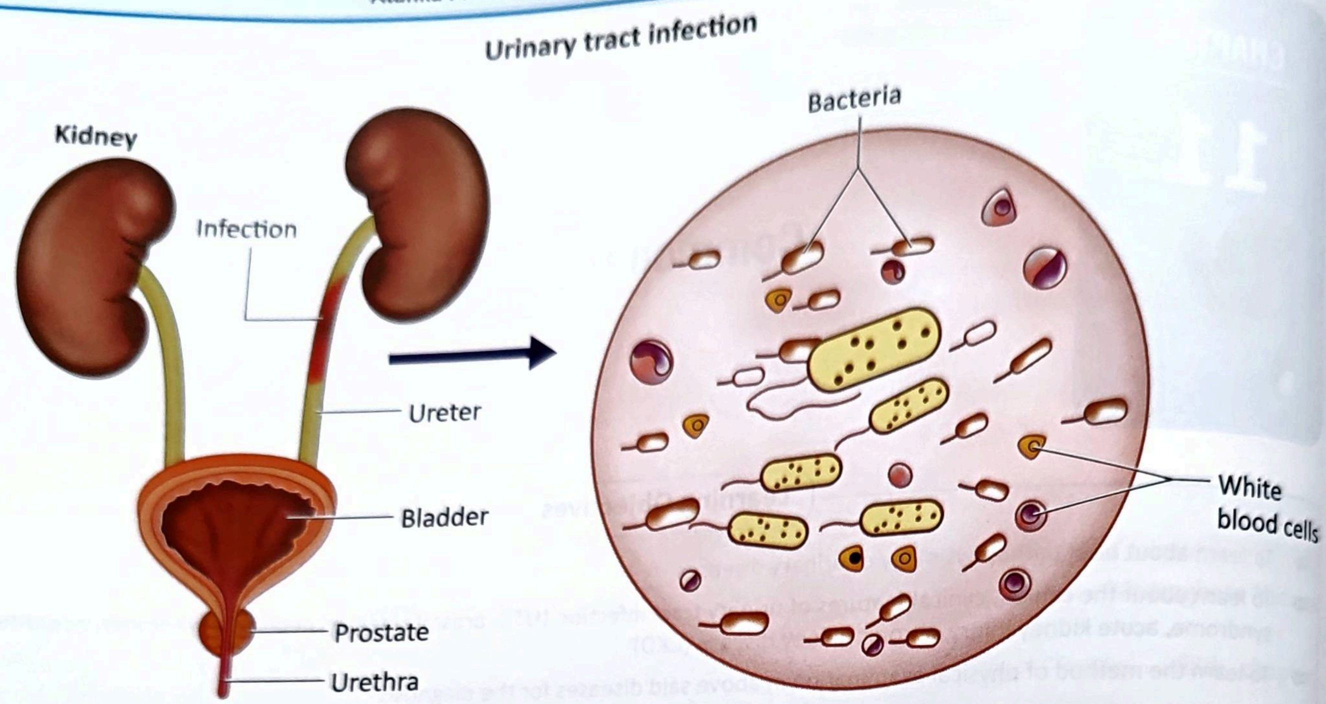


**Figure 20 :** Urinary Tract Infection

**Clinical features:**

- Depending upon the involvement of organ afflicted different clinical features can be seen. Increased frequency of micturition; whereas affliction of ureter, the patient will have pain from the flank which radiate from loin to groin; in case of affliction of urinary bladder, the patient will have pain in the supra pubic region; and affliction of urethra leads to the burning micturition.
- In case of urinary tract infection, the person will have one or two or all symptoms.

**Physical examination:**

- **Murphy's kidney punch (renal angle test):** In sitting posture, the patient folds his arms in front so that the back is stretched enough for better palpation. The clinician presses his thumb on the renal angle formed by the lower border 12th rib and outer border of erector spinae. This is of great value in determining tenderness of the kidney. This is usually indicating the calculi which is one of the cause of UTI.
- **Per abdominal examination:** Palpation of per abdominal examination is done on the right lumbar and left lumbar region to analyse the status of the ureter and palpation of the supra pubic region to analyse the status of the urinary bladder.
- Urethra can be examined to analyse the inflammation of the urethra or any ulcer of the urethra or the presence of any urethral anomalies such as hypospadias. In the females, the examination of external genital organs to exclude the cystocele.

**Laboratory investigations:**

- Complete blood count:
- Urine analysis: microscopic examination of urine particular
- Urine culture:
- Physical examination of urine:

## Prostatomegaly

The term prostatomegaly **(see Figure 21)** refers to enlargement of prostate gland. Normally occurring prostatic enlargement is benign prostatic hyperplasia (BPH). This is non malignant adenomatous overgrowth of the periurethral gland. Diagnosis is done by digital examination primarily and based on symptoms; cystoscopy, transrectal ultrasonography, urodynamics and other studies. This is usually seen in men aged 55 to 74 without prostatic cancer. Aetiology is usually unknown.

**Pathophysiology:**

- Multiple fibroadenomatous nodules develop in the periurethral region of the prostate. This leads to the narrowing and lengthening of prostatic urethra. This leads to the hypertrophy of bladder detrusor (obstruction to the flow of urine), trabeculation, cellule formation and diverticula.
- This may lead to incomplete bladder emptying, thus resulting in formation of calculus and infection. Prolonged obstruction may lead to hydronephrosis and compromise in renal function.

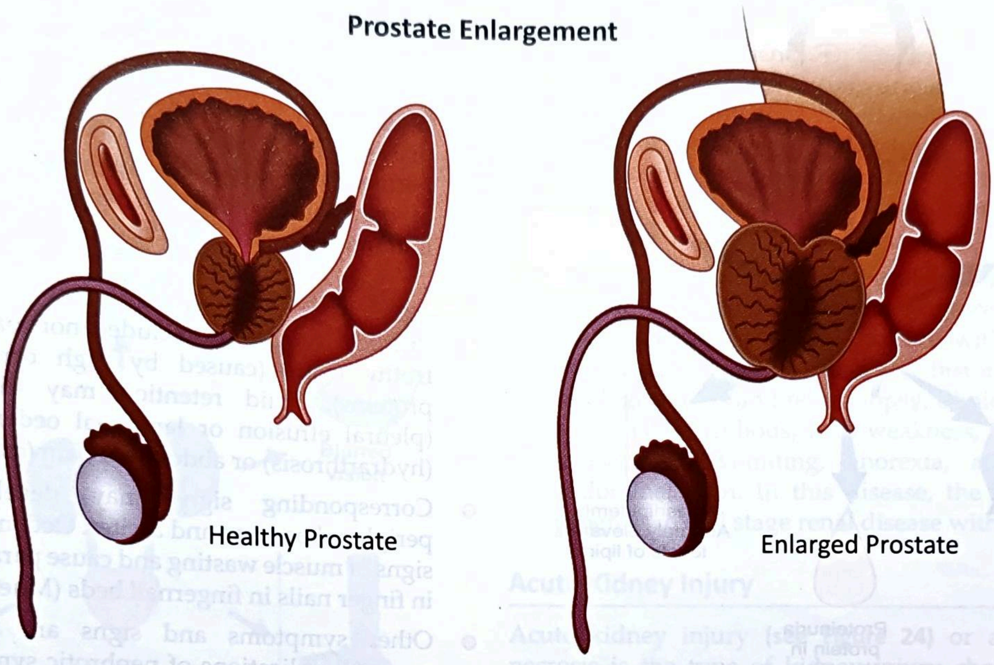


**Figure 21 :** Image of normal prostate and begign prostate enlargement

### Clinical features:

- Symptoms include progressive urinary frequency, urgency, nocturia due to incomplete emptying and rapid refilling of the bladder. Pain and dysuria are not observed. Hesitancy and intermittency are usually observed secondary to decreased size and force of the urinary stream.
- Sensations of incomplete emptying, terminal dribbling, overflow incontinence or complete urinary retention may occur.
- Straining to void can cause congestion of the superficial veins of the prostatic urethra and trigone, which may rupture and cause haematuria. Straining may also cause vasovagal syncope in acute condition.
- Some patients may present with sudden, complete urinary retention, with marked abdominal discomfort and bladder retention. This may be associated with prolonged attempts to retain urine, immobilization, exposure to cold etc.

Diagnosis is done by history, digital rectal examination, urinalysis and culture, prostate specific antigen level , bladder ultrasonography, transrectal biopsy .

## Nephrotic Syndrome

Nephrotic syndrome **(see Figure 22)** is urinary excretion of > 3gm of protein/ day due to a glomerular disorder. It is more common among children and has both primary and secondary causes. Diagnosis is by determination of urine protein/ creatinine ratio in a random urine sample or measurement of urinary protein in 24 hour urine collection; cause is diagnosed based on history, physical examination, serologic testing and renal biopsy. Prognosis may vary depending upon the cause.

### Etiology of nephrotic syndrome:

- This disease can occur at any age, but more commonly observed in children, mostly between the age of 1 and ½ years to 4 years. At younger ages, boys are affected more frequently than girls; but both genders are afflicted with this disease equally when grew older.
- The following are primary diseases of nephrotic syndrome:
    - ➤ Minimal change disease
    - ➤ Focal segmental glomerulosclerosis
    - ➤ Membranous nephropathy
- Secondary causes are
    - ➤ **Metabolic:**
- Amyloidosis
- Diabetes mellitus
    - ➤ **Immunological:**
- Systemic lupus erythematosus
- Polyarthritis nodosa
- Serum sickness
- Sjogren's syndrome
- Erythema multiforme
    - ➤ **Idiopathic:**
- Sarcoidosis
    - ➤ **Neoplastic:**

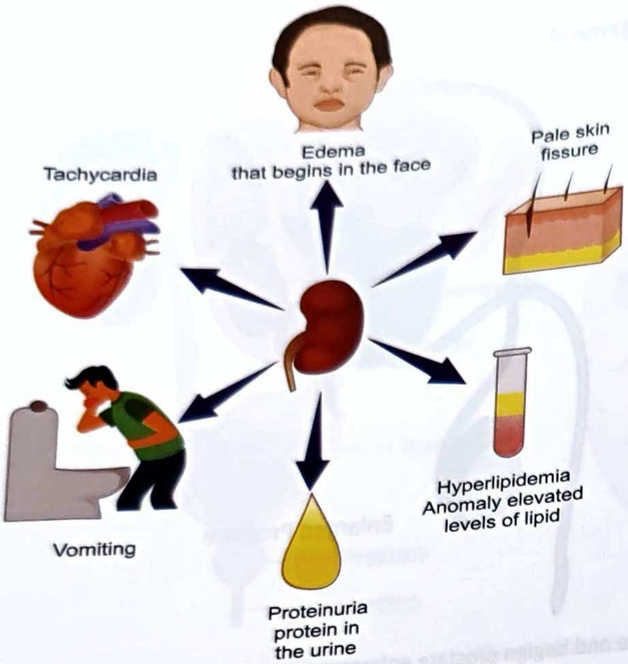

Tachycardia
Edema that begins in the face
Pale skin fissure
Vomiting
Hyperlipidemia Anomaly elevated levels of lipid
Proteinuria protein in the urine

**Figure 22:** Clinical features of nephrotic syndrome

- Leukemia
- Lymphoma
- Melanoma
- Multiple myeloma

➤ **Drug related:**

- Gold
- Heroin
- Lithium
- Mercury
- NSAIDs (non steroidal anti inflammatory drugs)

➤ **Bacterial:**

- Infective endocarditis
- Leprosy
- Syphilis

➤ **Protozoa:**

- Filariasis
- Malaria
- Helminths infestation

➤ **Viral:**

- Hepatitis B and C
- Herpes zoster
- HIV infection

➤ **Diabetic nephropathy**

➤ **Preeclampsia**

### Pathophysiology:

- Proteinuria occurs due to changes in the capillary endothelial cells of glomerular basement membrane.
- The mechanism of damage to the endothelial cells is unknown in primary and secondary glomerular diseases. But T cells may up-regulate a circulating permeability factor or down-regulat an inhibitor of permeability factor in response to unidentified immunogens and cytokines.

### Clinical features:

- Primary symptoms include anorexia, malaise and frothy urine (caused by high concentrations of proteins). Fluid retention may cause dyspnoea (pleural effusion or laryngeal oedema), arthralgia (hydrarthrosis) or abdominal pain (ascites).
- Corresponding signs may develop including peripheral oedema and ascites. Oedema may obscure signs of muscle wasting and cause parallel white lines in finger nails in fingernail beds (Muehrcke's lines).
- Other symptoms and signs are attributable to many complications of nephrotic syndrome such as oedema, infection such as cellulitis, anemia, protein malnutrition or chronic kidney disease.

**Diagnosis of the disease:** Diagnosis is suspected in patients with oedema and proteinuria on urinalysis and confirmed by proteinuria test and 24 hours measurement of proteins. This may be seen in SLE, preeclampsia, cancer. When the cause is unclear, then additional serological testing and proteinuria test is performed to confirm the diagnosis.

- Proteinuria $\geq 3$ gm/ 24 hours
- Serological testing and renal biopsy until the cause is clinically obvious.

➤ **Elevated HbA1C level in case of diabetes mellitus;** ANA tests; hepatitis B and C tests may help in the assessment of secondary causes of nephrotic syndrome.

➤ **Renal biopsy:** is performed in the diagnosis of chronic kidney disease.

### Prognosis:

- Prognosis vary according to the cause. Complete remissions may occur spontaneously or with treatment. The prognosis is generally favourable in corticosteroid responsive disorders.
- Prognosis is worsened by infection; hypertension; significant azotemia; hematuria; cerebral thrombosis; pulmonary thrombosis; peripheral thrombosis; renal vein thrombosis.

## Nephritic Syndrome

Nephritic syndrome **(see Figure 23)** is defined by haematuria and the presence of dysmorphic RBCs and RBC casts on microscopic examination of urinary sediment. Often one or more of the following elements are present: mild to moderate proteinuria, oedema, hypertension, elevated serum creatinine and oliguria. Diagnosis is done by history, physical examination and sometimes by renal biopsy.

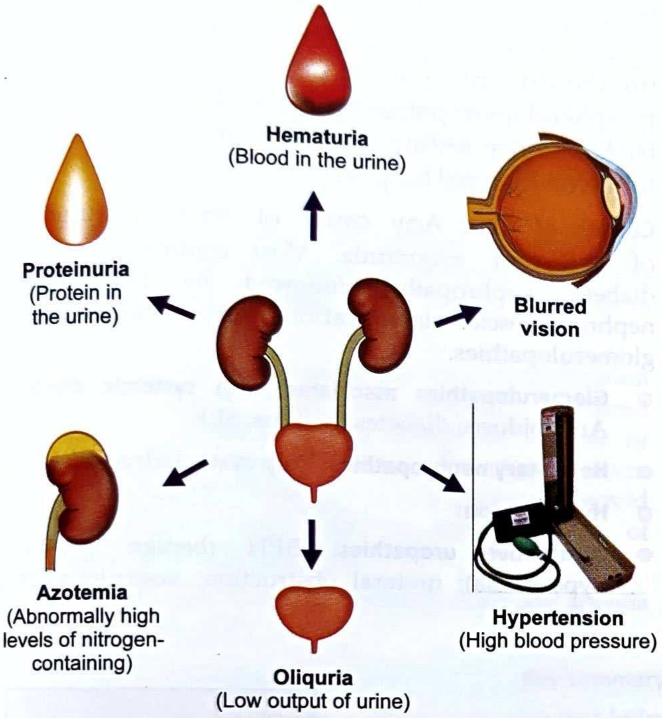


**Figure 23 :** Clinical features of nephritic syndrome

- **Nephritic syndrome is a manifestation of glomerular inflammation** i.e. glomerulonephritis (GN) and occurs at any age. Causes of the disease may be either primary (IgA glomerulonephropathy, fibrillary GN etc or secondary such as infective (bacterial, viral or parasitic), connective tissue disorders such as SLE etc.

### Clinical features of the disease

- Most common manifestation is persistent or recurrent macroscopic haematuria or asymptomatic microscopic haematuria with mild proteinuria. Gross haematuria begins in 1 to 2 days after a febrile mucosal (upper respiratory, sinus, enteral) illness, thus mimicking postinfective GN. This is seen in IgA nephropathy. Diagnosis is by clinical findings and urinalysis and sometimes renal biopsy. IgA nephropathy progresses slowly, renal insufficiency and hypertension develop within 10 years in 15 to 20% of the patients; progression to end stage renal disease occurs in 20% of the patients after 20 years of the initial onset.
- Postinfectious glomerulonephritis (PIGN) occurs in children between 5 to 15 years. Symptoms range from asymptomatic haematuria and mild proteinuria to full blown nephritis with microscopic or gross haematuria (cola coloured, brown, smoky or frank blood in the urine), proteinuria, oliguria, oedema, hypertension and renal insufficiency. Diagnosis is done by clinical evidence of recent infection; urinalysis showing GN. Normal renal function is retained or regained in 85 to 95% of the patients. GFR returns to normal over 1 to 3 months; but proteinuria may persist for 6 to 12 months and microscopic haematuria may persist for several years.
- Rapidly progressive glomerulonephritis (RPGN) causes microscopic glomerular crescent formation with progression to renal failure within weeks to months. Diagnosis is based on history, urinalysis, serological tests and renal biopsy. Clinical symptoms are usually insidious, with weakness, fatigue, fever, nausea and vomiting, anorexia, arthralgia and abdominal pain. In this disease, the patients may progress to end stage renal disease within 6 months.

## Acute Kidney Injury

Acute kidney injury **(see Figure 24)** or acute tubular necrosis is the type of kidney injury characterized by acute tubular cell injury and dysfunction. Common causes are hypotension causing renal hypoperfusion and nephrotoxic drugs. The condition is usually asymptomatic unless it causes renal failure. The diagnosis is suspected when azotemia develops after a hypotensive event, severe sepsis or drug exposure and is distinguished from pre renal azotemia by laboratory testing and response to volume expansion.

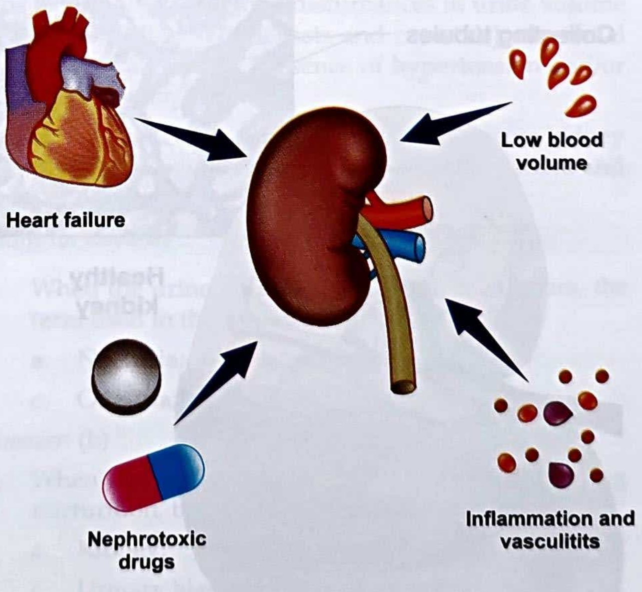


**Figure 24 :** Causes and features of acute kidney injury

### Causes:

- Hypotension (ischemic ATN)
- Nephrotoxins
- Sepsis

- Major surgery
- Third degree burns
- Disorders resulting in other endogenous toxins such as tumour lysis or multiple myeloma

### Pathogenesis

- Massive volume loss as in case of hypovolemic shock or hemorrhagic shock or pancreatitis
- Serious surgeries and advanced hepatobiliary diseases, poor perfusion states, advanced age who is at risk for aminoglycoside toxicity.

### Clinical features

Asymptomatic initially but may cause symptoms or signs of acute renal failure, typically oliguria (urine volume <500 ml in 24 hours)

**Diagnosis:** differentiation from prerenal azotemia, based on laboratory findings mainly, and in the case of blood or fluid loss, response to volume expansion excludes the diagnosis acute kidney injury.

## Chronic Kidney Disease

This is also being termed as chronic renal failure or CKD. **(see Figure 25)** This is a long standing, progressive deterioration of renal function. Symptoms develop slowly and include anorexia, nausea, vomiting, stomatitis, dysgeusia, nocturia, lassitude, fatigue, pruritus, decreased mental acuity, muscle twitches and muscle cramps, water retention, undernutrition, GI ulceration and bleeding, peripheral neuropathies, seizures. Diagnosis is done by laboratory testing of renal function, sometimes followed by renal biopsy.

**Causes of CKD:** Any cause of renal dysfunction of sufficient magnitude. Most common cause is diabetic nephropathy, followed by hypertensive nephroangiosclerosis and various primary and secondary glomerulopathies.

- **Glomerulopathies associated with systemic disease:** Amyloidosis; diabetes mellitus; SLE
- **Hereditary nephropathies:** Poly cystic kidney diseases
- **Hypertension:**
- **Obstructive uropathies:** BPH (benign prostatic hyperplasia); ureteral obstruction; vesicoloureteral reflux

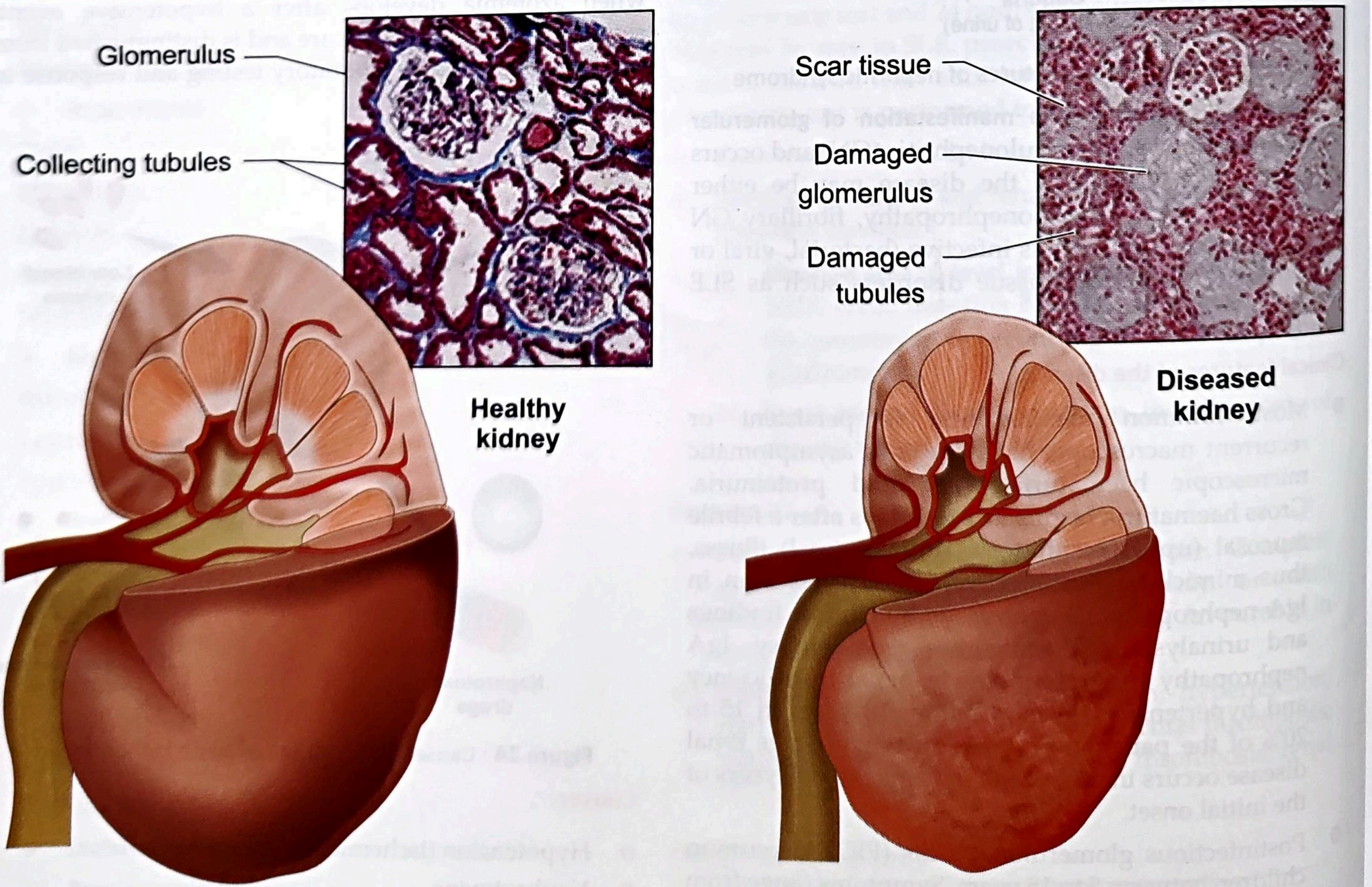


**Figure 25 :** Clinical features of chronic kidney disease (CKD)

**Pathogenesis:** CKD can be categorized into diminished renal reserve; renal insufficiency or renal failure (end stage renal disease)

- Initially, renal tissue loses function, there are few abnormalities because of remaining tissues taking the functions of the diseased nephrons. 75% of the renal tissue damage leads to the a fall of GFR to only 50% of the normal.
- Decreased renal function interferes with the kidney's ability to maintain fluid and electrolyte homeostasis. Plasma concentrations of creatinine and urea are going to rise on the reduction of GFR.
- Despite a diminishing GFR, sodium ions and water balance is well maintained by increased fractional excretion of sodium ions and a normal response to thirst.
- Renal osteodystrophy (abnormal bone mineralization resulting from hyperparathyroidism, calcitriol deficiency, elevated serum phosphate or low or normal serum calcium level usually takes the form of increased bone turn over due to hyperparathyroid bone disease. There may be the possibility of osteopenia or osteomalacia.
- Moderate acidosis (excess carbonic acid) and anemia may be observed.

## Clinical features

- Patients with mildly diminished renal reserve are asymptomatic. Even the patients with mild to moderate renal insufficiency may have no symptoms despite elevated BUN and creatinine. Nocturia is often noted due to failure to concentrate urine.
- With more severe renal insufficiency, neuromuscular symptoms may be present, including coarse muscular twitches, peripheral sensory and motor neuropathies, muscle cramps, hyperreflexia and seizures may be observed. Anorexia, nausea, vomiting, weight loss, stomatitis are almost uniformly present. Pruritus may be uncomfortable.
- In advanced CKD, pericarditis, GI ulceration and bleeding are common.
- Diagnosis is done by assessment of serum electrolytes, creatinine, CBC, urinalysis, ultrasonography and sometimes renal biopsy.
- Prognosis is predicted in most cases by the degree of proteinuria. Patients with nephrotic range proteinuria (≥ 3g/ 24 hours) usually have poorer prognosis and progress to renal failure rapidly. Patients with proteinuria (≤ 1.5 g/ 24 hours) progression occurs very slowly.

## Key summary of the chapter

- Excretory system (urinary system) is having two kidneys, two ureters, one urinary bladder and one urethra, each having typical function in the elimination of the metabolites formed in the body to the exterior.
- The clinical manifestations of urinary disease include one or more of the following: disturbances in urine volume (anuria, oliguria or polyuria); abnormalities of urinary sediments (RBCs, WBCs, casts and cryastals); abnormal excretion of serum proteins; reduction in glomerular filtration rate (azotemia); presence of hypertension and/or expanded total body volume (oedema); electrolyte abnormalities and pain or fever.
- In this chapter, we have discussed urinary tract infection; nephritic syndrome; nephrotic syndrome, acute kidney injury and chronic kidney disease in brief along with necessary physical examination performed in the patient and necessary investigations performed while doing the diagnosis of the diseases.

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain urinary tract infection
- Describe prostatomegaly
- Explain chronic kidney disease
- Explain nephritic syndrome
- Explain nephrotic syndrome

### MCQs

1. The term polyuria is used when the 24 hours urine amounts more than

   a. 500 ml;
   b. 1,200 ml;
   c. 2,000 ml;
   d. 3,000 ml

*Answer*: (d)

2. When the urine volume is < 100 ml in 24 hours, the term used in this situation is

   a. Nocturia; b. Anuria;
   c. Oliguria; d. Polyuria

*Answer*: (b)

3. When an individual is presented with burning micturition, the probable organ afflicted will be

   a. Kidney; b. Ureter;
   c. Urinary bladder; d. Urethra

*Answer*: (d)

4. Renal osteodystrophy manifests in an individual because of

   a. Hyperthyroidism;
   b. Hyperparathyroidism;

c. Hyperpituitarism;
d. Hypergonadism

*Answer*: (b)

5. Haematuria is one of the essential feature of
   a. Urinary tract infection;
   b. Nephritic syndrome;
   c. Nephrotic syndrome;
   d. Chronic kidney disease

*Answer*: (a)

6. Which of the following symptom indicates the presence of benign prostatic hyperplasia?
   a. Burning micturition;
   b. Intermittency;
   c. Haematuria;
   d. Increased frequency

*Answer*: (b)

7. Which of the following symptom will not be present in the patient of benign prostatic hyperplasia?
   a. Hesitancy;
   b. Intermittency;
   c. Terminal dribbling;
   d. Painless micturition

*Answer*: (d)

8. PSA level is specifically useful in the assessment of
   a. Bladder dysfunction;
   b. Urethral dysfunction;
   c. Prostatic dysfunction;
   d. Ureteral dysfunction

*Answer*: (c)

9. Nocturia is absent in which of the following condition?
   a. Diabetes mellitus;
   b. Congestive cardiac failure;
   c. Benign prostatic hyperplasia;
   d. Acute diarrhoea

*Answer*: (d)

10. Periorbital oedema in the early morning is observed in which of the following condition?
    a. Cardiac oedema;
    b. Renal oedema;
    c. Hepatic oedema;
    d. Nutrition deficiency induced oedema

*Answer*: (b)

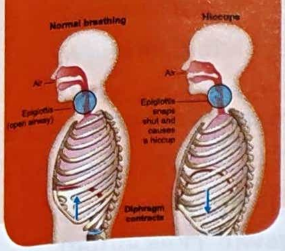
**Chapter resources**

- https://www.news-medical.net/health/Urinary-Tract-Infections-in-Children.aspx
- https://livayur.com/health-condition/prostatomegaly-symptoms-stages-causes-diagnosis-treatment/
- https://www.netmeds.com/health-library/post/nephrotic-syndrome-causes-symptoms-and-treatment
- https://www.shutterstock.com/image-vector/nephritic-syndrome-acute-kidneys-disease-368834942
- https://www.vejthani.com/diseases-conditions/acute-kidney-failure/
- https://www.mayoclinic.org/diseases-conditions/chronic-kidney-disease/symptoms-causes/syc-20354521#dialogId51990058
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

# CHAPTER

# 12



# Hikka

## Learning Objectives

- To learn the concept of Hikka
- To learn the Nidana Panchaka of Hikka mentioned in Ayurveda textbooks
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To describe the cardinal features of individual type of Hikka

## Introduction

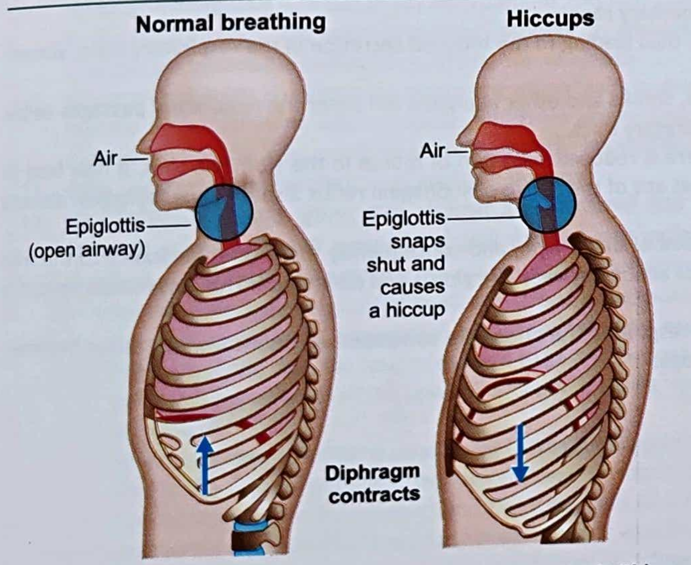


**Figure 26 :** Image of healthy individual and patient of Hikka

*Hikka* **(see Figure 26)** is the spectrum of diseases where *Vata Kapha Dosha* vitiation is observed in the pathogenesis of the disease. This is characterised by production of specific type of sound *'Hik'* frequently as if the organs of abdomen will come out of the mouth. This is afflicting *Rasa Dhatu* and involves *Pranavaha* and *Rasavaha Srotas*. As *Pranavaha Srotas* is afflicted in the patient, one can observe the involvement of *Hridaya* and *Mahasrotas* in due course of time, because *Srotomula* affliction can be commonest event that can occur in case of progression of the disease. *Hridaya* and *Mahasrotas* may afflict during the pathogenesis of the disease. It is also termed as *Hidhma*. As per current understanding, hiccup is a phenomenon which occurs as a result of hyperactivity of diphragm, one of the primary muscle of respiration.

**कफवातात्मकावेतौ पित्तस्थान समुद्भवौ।**
**हृदयस्य रसादीनां धातूनां चोपशोषणौ॥8॥**

Ca.Ci. – 17/8

*Hikka* is considered to be *Amashaya Samuttha Vikara*, manifested due to the vitiation of *Vata* and *Kapha Dosha*, finally resulting in the dryness of *Rasa* etc *Dhatu*.

**मुहुर्मुहुर्वायुरुदेति सस्वनो यकृत्प्लिहान्त्राणि मुखादिवाक्षिपन्।**
**स घोषवानाशु हिनस्त्यसून् यतस्ततस्तु हिक्केत्यभिधीयते बुधैः॥3॥**

Ma.Ni. – 12/3

The person will have specific sound *'Hik'* frequently through the mouth by vitiated *Vata* as if *Yakrit, Pliha* and *Antra* etc organs of the abdomen come out of the mouth. This is considered to be life threatening illness. As the sound *'Hik'* is produced, this disease is named as *Hikka*[1].

---

[1] Hikka is group of the disease where we can observe repeated involuntary spasms of diaphragm followed by sudden closure of the glottis, which checks the inflow of the air and causes the characteristic sound. Normally, the opening of the glottis synchronises with the contraction of the diaphragm, and consequently there is no hindrance to the free entry of air. Oesophageal disease such as gastro oestophageal reflux disease; abdominal diseases such as bowel diseases, gall bladder disease, hepatitis, pancreatitis, pregnancy; thoracic diseases such as diaphragmatic pleurisy, pericarditis, pneumonia, thoracic surgery and other causes such as alcoholism, uremia and posterior fossa tumours of the brain are considered as the intractable causative factors of the hiccup.

## Nidana of Hikka

रजसा धूमवाताभ्यां शीतस्थानाम्बुसेवनात्।
व्यायामानाम्यधर्माध्वरूक्षान्न विषमाशनात्॥1 1॥
आमप्रदोषादानाहाद्रौक्ष्यादत्यपतर्पणात्।
दौर्बल्यान्मर्मणो घातद्वन्द्वाच्छुद्धयतियोगतः॥1 2॥
अतीसारज्वरच्छर्दि प्रतिश्यायक्षतक्षयात्।
रक्तपित्तादुदावर्ताद्विसूच्यलसकादपि॥1 3॥
पाण्डुरोगाद्विषाच्चैव प्रवर्तेते गदाविमौ।
निष्पावमाषपिण्याकतिलतैलनिषेवणात्॥1 4॥
पिष्टशालूकविष्टम्भिविदाहिगुरुभोजनात्।
जलजानूपपिशितदध्यामक्षीरसेवनात्॥1 5॥
अभिष्यन्द्युपचाराच्च श्लेष्मलानां च सेवनात्।
कण्ठोरसः प्रतीघाताद्विबन्धैश्च पृथग्विधैः॥1 6॥ Ca.Ci. – 17/11-16

विदाहिगुरुविष्टम्भिरुक्षाभिष्यन्दिभोजनैः।
शीतपानासनस्थानरजोधूमानिलानलैः॥3॥
व्यायाम कर्मभाराध्ववेगाघातापतर्पणैः।
आमदोषाभिघातस्त्रीक्षयरोगप्रपीडनैः॥4॥
विषमाशनाध्यनशनैस्तथा संशमनैरपि।
हिक्का श्वासश्च कासश्च नृणां समुपजायते॥5॥ Su.Ut. – 50/3-5

विदाहिगुरुविष्टम्भिरुक्षाभिष्यन्दिभोजनैः।
शीतपानाशनस्थानरजोधूमातपानिलैः॥1॥
व्यायामकर्मभाराध्ववेगाघातापतर्पणैः। Ma.Ni. – 12/1-2

- Excess exposure to dust
- Excess exposure to smoke[2]
- Excess exposure to cold air
- Residing in very cold environment for most of the occasions
- Excess intake of ice cold water[3]
- Excess exercise[4]
- Excess indulgence in sexual intercourse[5]
- Excess intake of dry food substances[6]
- Frequent consumption of food substances at improper time and in inappropriate quantity
- When an individual is suffering *Amapradosha* (acute

---

**GK**

[2] Excessive exposure to these causes are responsible for the manifestation of pneumonia. As mentioned above, pneumonia is considered as one of the intractable cause of hiccup. Exposure to dust and smoke may lead to inflammation of upper and lower respiratory passages. If the size of the particle is < 6 μ, then such particle will be entering the alveoli and suspend in the air and even gets attached to the wall of the alveolus, initiating the inflammatory process.

[3] When an individual is exposed to cold atmosphere, several physiological changes may occur in the body.

1. Contraction of mucosa of the respiratory system, skin, and alimentary canal.
2. This may initiate the activation of sympathetic nervous system, thus leading to the reduced secretion in the respiratory tract, alimentary canal and skin.
3. Due to the reduced secretion in the above said parts, the dust, smoke and other allergens will enter the respiratory passages easily, thereby leads to the inflammatory changes to occur in the respiratory tract.
4. Due to the entry of ice cold water, in the alimentary canal, there is reduced secretion of mucus in the stomach, thus, it may lead to alimentary canal dysfunction. In the above passage, it is said that any of the gastro oesophageal reflux disease or oesophageal disease is considered to be the intractable cause of hiccup.

[4] Normally, the opening of the glottis synchronises with the contraction of diaphragm, and consequently there is no hindrance to the free entry of the air. In case of excess exercise, there may be asynchronous action between the glottis and diaphragm. This may initiate episodes of hiccups.

When the person is indulging in excess sexual intercourse and if his respiratory functions are compromised, asynchronous action between glottis and diaphragm may occur which initiate the episodes of hiccups.

[5] In males, the stages of male sexual response cycle are as follow:

1. Presence of libido or sexual drive
2. Erection
3. Emission and ejaculation
4. Male orgasm
5. State of resolution

In females, the stages of female sexual response cycle are as follow:

1. Excitement phase: Presence of libido including psychic and local sexual stimulation
2. Plateau phase: Female erection of clitoris and lubrication of external genitals and vagina
3. Orgasm phase: Female orgasm (extreme satisfaction)
4. Resolution phase

It is being mentioned that the best cure for intractable hiccups is sexual intercourse as per Fesmire on his study on rectal massage which was published in Scientist in 2006. It is being responsible for the appearance of orgasm. This orgasm is said to be stimulating parasympathetic nervous system and this stimulation inhibits the overactivity of diaphragm, a primary muscle of respiration.

In case of indulgence in sexual intercourse, the appearance of orgasm may diminish in both sexual partners. In the males, ejaculation is considered to be the stage in male orgasm and in females, the orgasm may occur in two or three or more occasions during or after sexual intercourse. Ejaculation of semen into the vagina may not be the reason for female orgasm.

When the couple indulge in excess sexual intercourse, that will be leading to the activation of sympathetic nervous system which in turn leads to the reduced secretion of alimentary secretions, and stimulates the overactivity of diaphragm. Thus, the person may develop hiccup.

[6] When an individual consumes excess dry substances such as bread etc, that may lead to the activation of sympathetic nervous system in due course of time, this is responsible for the reduced secretion of the digestive juices and this may induce the alimentary canal disturbances, which may be considered as one of the intractable cause of hiccups.

affliction of alimentary canal)[7]

- When an individual is suffering from distension of abdomen[8]
- When a person is exposed to dry environment[9]
- When an individual is undergoing the treatment measures leading to depletion of body tissues[10] i.e. *Langhana* therapy
- When an individual is having severe debility
- When an person is having injury to *Marma* (vital points)[11]
- *Dvandva*[12]
- When an individual is undergoing excess *Shodhana* (purificatory therapy) line of treatment excessively
- When an individual is suffering from *Atisara, Jvara, Chardi, Pratishyaya, Kshata, Kshaya, Raktapitta, Udavarta, Visuchika* and *Alasaka, Panduroga* and *Visha*[13]
- If a person consumes *Nishpava* (beans), *blackgram, Pinyak* (oil cake), substances prepared from *sesamum* oil, substances prepared from flour, *Shaluka* (esculent root of different kinds of lotus), substances which hampers the movement of *Vata Dosha* in the *Koshtha* (alimentary canal), substances which cause *Vidaha* (burning sensation in the chest and thirst)[14],
- Substances which are heavy to digest
- If the person consumes the meat of aquatic and marshy animals
- If the person consumes curds in excess quantity
- If the person consumes milk without proper boiling
- If the person consumes more amount of *Abhishyandi Ahara* (substances which cause obstruction in the *Srotas*)
- If the person consumes more amount of *Kapha* vitiating substances[15]
- Suppression of natural urges[16]
- If the person consumes excess amount of food before the digestion of previously ingested meals[17]

---

**G K**

[7] In this instance, the person may have either acute inflammation of the upper or lower alimentary canal or both or there may be the possibility of acute irritation of the diaphragm. The outcome of the above said mechanisms may be the occurrence of hiccups.

[8] When an individual is presented with above said clinical presentation, the person may have either small or large intestinal obstruction or there may be a possibility of irritation of the diaphragm due to the overstretching of the diaphragm because of intestinal obstruction. As stated earlier, bowel diseases are considered as intractable cause of hiccups.

[9] When an individual is exposed to dry environment, this may lead to the excitation of sympathetic nervous system, this may in turn is leading to the reduced secretion in the respiratory airways or alimentary canal or both. It is being said that pneumonia and gastro oesophageal diseases are intractable causes of manifestation of hiccup.

[10] When an individual is undergoing treatment which leads to excess lightness of the body, that means the person is undergoing emaciation therapy. In this situation, adipose tissues which are accumulated in different parts of the body, that may enter the general circulation, and these will enter the liver, resulting in hepatomegaly. hepatic diseases are considered as one of the intractable cause of hiccups.

[11] Refer the reference of undergoing Langhana therapy

[12] लङ्घनातियोगादितः। द्वन्द्वात् गुरुलघू द्वन्द्वो शीतोष्णो द्वन्द्वो मन्दतीक्ष्णो द्वन्द्वौ मृदुकठिनो द्वन्द्वो खरमसृणो द्वन्द्वो विशदपिच्छिलो इन्द्रो स्थिरसरो द्वन्द्वो स्थूलसूक्ष्मो द्वन्द्वो स्निग्धरुक्षी इन्द्रौ सान्द्रद्रवो द्वन्द्वौ सुखदुःखे द्वन्द्वो इन्द्रौ चेच्छाद्वंपौ द्वन्द्वो प्रवृत्तिनिवृत्ती चेति। अतीसारादयो रोगा हिकाश्वासरोग Gangadhara; Ca.Ci. – 17/10-16

In this, the term Dvandva indicates the continuous consumption of substances having opposite qualities at a particular time frequently.

- For example, consumption of Shita and Ushna substances. The consumption of Shita substances at the beginning will lead to the dilution of gastric juice, constriction of mucous cells and less secretion of mucus. At this particular time period, if the person consumes hot substances, this may lead to damage to gastric mucosa. This may lead to the irritation of the alimentary canal leading to the excess peristaltic movements in the upward direction, causing vomiting. When the person is having vomiting, it is initiated by contraction of diaphragm.
- Suppose, if the individual is consuming Ushna substances at the beginning itself, this may result in inflammation of stomach. This will lead to the reverse peristaltic movement, causing vomiting. At this time period, if the person consumes Shita (cold) substances, this may be responsible for constriction of mucous cells of the stomach, reduced gastric juice secretion. As there is inflammation in the stomach, the person may have further episodes of vomiting. This may lead to contraction of diaphragm.
- Thus consumption of Shita and Ushna substances or Ushna and Shita substances consequently may lead to the initiation and worsening of vomiting. GERD is considered to be one of the intractable cause of vomiting.
- As per French Index of differential diagnosis textbook, sudden change in the temperature of stomach either consumption of very cold or hot substances induces hiccups.

[13] Refer the reference of undergoping Langhana therapy.

[14] These substances will be responsible for the vitiation of Vata and Pitta Dosha in the body.

[15] The exposure to above said aetiological factors will lead to the vitiation of the Kapha Dosha in the body. When Kapha Dosha is increased in the body, this will lead to the excess respiratory secretion and secretions from alimentary canal. Thus, both are the risk factors for the development of inflammatory changes in the respiratory airways and alimentary canal. As earlier stated, pneumonia and GERD are the intractable causes of hiccups.

[16] Suppose, let us take the example of Purisha Vega Dharana (suppression of urge of defaecation). When the person is frequently associated with suppression of urge of defaecation, that will lead to the vitiation of Apanavata, which in turn leads to the abnormal functioning of Samana Vata and later there will be affliction of Prana Vata can be seen. If the individual is having the frequent habit of suppression of urge of defaecation, that may lead to excess distension of the abdomen, and this may be the cause of irritation of diaphragm and thus the person may develop hiccups.

[17] In this situation, the person may have excess vitiation of Kapha Dosha in the body. Refer the causes of vitiation of Kapha Dosha and sub-

## Samprapti of Hikka

मारुतः प्राणवाहीनि स्रोतांस्याविश्य कुप्यति।
उरःस्थः कफमुद्धूय हिक्काश्वासान् करोति सः॥१7॥ Ca.Ci. – 17/17
प्राणोदकान्नवाहीनि स्रोतांसि सकफोऽनिलः।
हिक्काः करोति संरुध्य तासां लिङ्गं पृथक् शृणु 21 Ca.Ci. – 17/21

- *Vata* and *Kapha Dosha* get vitiated involving *Pranavaha, Udakavaha* and *Annavaha Srotas* hampering their function.
- *Hikka* is manifested due to this abnormal mechanism.

## Samprapti Ghataka

- **Dosha :** *Vata Kapha*
- **Dushya :** *Rasa, Udaka*
- **Srotas :** *Pranavaha, Udakavaha* and *Annavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira* (as *Rasa Dhatu* is involved)
- **Vyakta Sthana :** *Vaktra* and *Uras*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhi Svabhava :** *Ashukari*
- **Sadhyasadhyata :** *Asadhya*

## Purvarupa

कण्ठोरसोर्गुरुत्वं च वदनस्य कषायता।
हिक्कानां पूर्वरूपाणि कुक्षेराटोप एव च॥19॥ Ca.Ci. – 17/19
मुखं कषायमरतिर्गौरवं कण्ठवक्षसोः।
पूर्वरूपाणि हिक्कानामाटोपो जठरस्य च॥8॥ Su.Ut. – 50/8

- Heaviness of the throat[18]
- Heaviness of the chest[19]
- Astringent taste of the mouth[20]
- Distension of the abdomen[21]

## Types of Hikka

### 5 types as per Charaka

1. *Maha Hikka*
2. *Gambhira Hikka*
3. *Vyapeta Hikka*
4. *Kshudra Hikka*
5. *Annaja Hikka*

### 5 types as per Sushruta and Madhavakara

1. *Annaja Hikka*
2. *Yamala Hikka*
3. *Kshudra Hikka*
4. *Gambhira Hikka*
5. *Maha Hikka*

## Maha Hikka

क्षीण मांसबलप्राणतेजसः सकफोऽनिलः।
गृहीत्वा सहसा कण्ठमुच्चैर्घोषवतीं भृशम्॥22॥
करोति सततं हिक्कामेकद्वित्रिगुणां तथा।
प्राणः स्रोतांसि मर्माणि संरुध्योष्माणमेव च॥23॥
संज्ञां मुष्णाति गात्राणां स्तम्भं संजनयत्यपि।
मार्गं चैवान्नपानानां रुणच्युपहतस्मृतेः॥24॥
साश्रुविलुतनेत्रस्य स्तब्धशङ्खच्युतभ्रुवः॥
सतजल्पप्रलापस्य निर्वृतिं नाधिगच्छतः॥25॥
महामूला महावेगा महाशब्दा महाबला॥
महाहिकेति सा नृणां सद्यः प्राणहरा मता॥26॥ Ca.Ci. – 17/22-26
मर्माण्यापीडयन्तीव सततं या प्रवर्तते।
देहमायम्य वेगेन घोषयत्यतितृष्यतः॥14॥
महाहिक्केति सा ज्ञेया सर्वगात्रप्रकम्पिनी॥15॥
Su.Ut. – 50/14,15; Ma.Ni. – 12/9

- *Vata* and *Kapha Dosha* get vitiated in an individual who is physically weak, profound muscular atrophy, poor lustre and afflict throat.
- Production of continuous *'Hik'* sound[22] twice or

---

GK

stances having Guru quality (heavy to digest) etc.

[18] Normally, closure of the glottis synchronises with the contraction of the diaphragm, and consequently there is no hindrance to the free entry of air. When the individual is having asynchronous function of glottis and diaphragm, that is responsible for the manifestation of hiccup. This prodromal symptom indicates the asynchronous closure of the glottis. This indicates the undue awareness of dysfunction of glottis and the person may feel heaviness of the throat.

[19] Normally, closure of the glottis synchronises with the contraction of the diaphragm, and consequently there is no hindrance to the free entry of air. Heaviness of the chest implies the asynchronous closure of the diaphragm in relation to closure of the glotiis.

[20] The presence of astringent taste in the mouth indicates the dominance of Vata Dosha at that particular point of time. Vitiation of Vata Dosha may lead to abnormal peristaltic movement of the oesophagus and stomach; autonomic dysfunction which may lead to abnormal motility and reduced secretion. This may lead to asynchronous closure of the glottis and contraction of diaphragm, thus may lead to the manifestation of the hiccup.

[21] As far as the functions of Vata in relation to alimentary canal are concerned, the movement of Vata starts from proximal to distal side i.e. from oral cavity to anal region. When a person is presented with distension of the abdomen, Apana Vata affliction occurs at the beginning which leads to the reverse movement of Vata afflicting the Samana Vata and at last one can observe the affliction of Prana Vata in the patient. When Prana Vata affliction is noted in the individual, that may lead to the abnormal irritation of diaphragm, leading to hiccup.

[22] The presence of continuous Hik sound indicates structural abnormalities such as malignant lymphadenopathy from oesophageal cancer;

thrice at a time thereby resulting in a life threatening situation.

- Altered sensation of the body
- Stiffness of the body
- Watering from the eyes
- Stiffness of the temples and eyebrows
- Incomprehensible speech
- This disease is deep seated, severe episode of the illness and produces loud sound and is considered to be having more *Rogabala* (strength of the disease is more)

## Gambhira Hikka[23]

हिकते यः प्रवृद्धस्तु कृशो दीनमना नरः।
जर्जरीणोरसा कृच्छ्रं गम्भीरमनुनादयन्॥27॥
संजृम्भन् संक्षिपंश्चैव तथाऽङ्गानि प्रसारयन्।
पार्श्वे चोभे समायम्य कूजन् स्तम्भरुगार्दितः॥28॥
नाभेः पकाशयाद्वाऽपि हिक्का चास्योपजायते।
क्षोभयन्ती भृशं देहं नामयन्तीव ताम्यतः॥29॥
रुणच्युच्छ्वासमार्ग तु प्रनष्टबलचेतसः।
गम्भीरा नाम सा तस्य हिक्का प्राणान्तिकी मता30

Ca.Ci. – 17/27-30

नाभिप्रवृत्ता या हिक्का घोरा गम्भीरनादिनी॥12॥
शुष्ककण्ठजिहास्यश्वासपावरुजाकरी।
अनेकोपद्रवयुता गम्भीरा नाम सा स्मृता॥13॥

Su.Ut. – 50/12,13; Ma.Ni. – 12/9

- The person is very emaciated and having seriously affliction of chest of the individual.
- There will be severe fatigue, emaciation, bodyache
- Stiffness of both sides of the chest with crying type of sound
- '*Hik*' sound is produced from below the umbilicus or from *Pakvashaya*
- The person will have bending of the body and will have darkness in front of the eyes
- Obstruction of the respiratory passages and the patient will have profound loss of strength and enthusiasm.
- This is a life threatening illness.

## Vyapeta Hikka[24]

व्यपेता जायते हिक्का याऽन्नपाने चतुर्विधे।
आहारपरिणामान्ते भूयश्च लभते बलम्॥31॥
प्रलापवम्यतीसारतृष्णार्तस्य विचेतसः।
जृम्भिणो विप्लुताक्षस्य शुष्कास्यस्य विनामिनः॥32॥
पर्याध्मातस्य हिक्का या जत्रुमूलादसन्तता।
सा व्यपेतेति विज्ञेया हिक्का प्राणोपरोधिनी॥33॥

Ca.Ci. – 17/31-33

- This type of *Hikka* manifested due to the consumption of 4 types of food.
- This is aggravated after the complete digestion of food.
- This is associated with irrelevant speech, vomiting, diarrhoea, thirst and altered state of consciousness, yawning, eyes filled with tears, dryness of mouth, forward bending of the body, distension of the abdomen
- This is considered to be life threatening illness.

## Kshudra Hikka[25]

क्षुद्रवातो यदा कोष्ठाध्यायामपरिघट्टितः।
कण्ठे प्रपद्यते हिक्कां तदा क्षुद्रां करोति सः॥34॥
अतिदुःखा न सा चोरः शिरोमर्मप्रबाधिनी।
न चोच्छ्रासान्नपानानां मार्गमावृत्य तिष्ठति॥35॥
वृद्धिमायस्यतो याति भुक्तमात्रे च मार्दवम्।
यतः प्रवर्तते पूर्व तत एव निवर्तते॥36॥
हृदयं क्लोम कण्ठं च तालुकं च समाश्रिता।
साहिति नृणां साध्या प्रकीर्तिता॥37॥

Ca.Ci. – 17/34-37

विकृष्टकालैर्या वेगैर्मन्दैः समभिवर्तते॥11॥
क्षुद्रिका नाम सा हिक्का जत्रुमूलात् प्रधाविता।

Su.Ut. – 50/11,12; Ma.Ni. – 12/8

- In this type of *Hikka*, mild vitiation of *Vata Dosha* is noted due to physical exertion and vitiation of *Vata* is noted in *Koshtha*.
- This is responsible for the affliction of throat and there will be mild form of '*Hik*' sound.
- The illness is mild and it will not afflict the chest, head and other *Marmas*.

---

GK

lymphoma; pneumonia of lower lobe of lungs; empyema due to diaphragmatic pleurisy; diaphragmatic hernia; subphrenic abscess; lesions of medulla oblongata; intracranial hemorrhage or brain abscess; uremia or hysteria. Here, it indicates the presence of the hiccup throughout the lifetime of the patient.

[23] In this clinical condition, the person may have major disease afflicting the large intestine where chronic constipation may be associated such as carcinoma of sigmoid colon. It does not mean that only the disease of the sigmoid colon may be understood. Because we can consider the Pakvashaya as the whole large intestine commencing from caecum to rectum. Thus, from any of the affliction in the large intestine can be considered in this situation.

[24] It is being said that intestinal obstruction or surgery related to large intestinal obstruction may be associated with hiccups. In this situation, there may be the possibility of obstruction at splenic or hepatic flexure of large intestine which has close association with diaphragm.

[25] In this situation, rapid eating of food or dry food with little amount of water may be considered as the reason for the manifestation of hiccups. Here, the peculiarity about the pathogenesis is restricted to alimentary canal.

- This will not obstruct the passages of air and food.
- This disease will subside after the consumption of food.
- This is a self limiting disease.
- This involves *Hridaya* (heart), *Kloma* (site of thirst), *Kantha* (throat) and *Talu* (palate) and is mild in nature and is curable disease.

## Annaja Hikka[26]

सहसाऽत्यभ्यवहृतैः पानान्नैः पीडितोऽनिलः।
ऊर्ध्वं प्रपद्यते कोष्टान्मद्यैर्वाऽतिमदप्रदैः॥38॥
तथाऽतिरोषभाष्याध्वहास्यभारातिवर्तनैः।
वायुः कोष्ठगतो धावन् पानभोज्यप्रपीडितः॥39॥
उरः स्रोतः समाविश्य कुर्याद्धिक्कां ततोऽन्नजाम्।
तथा शनैरसंबन्धं क्षुवंश्चापि स हिक्कते॥40॥
न मर्मबाधाजननी नेन्द्रियाणां प्रबाधिनी।
हिक्का पीते तथा भुक्ते शमं याति च साऽन्नजा41 Ca.Ci. – 17/38-41
त्वरमाणस्य चाहारं भुञ्जानस्याथवा घनम्।
वायुरन्नैरवस्तीर्णः कटुकैरर्दितो भृशम्॥9॥
हिक्कत्यूर्ध्वगो भूत्वा तां विद्यादन्नजां भिषक्। Su.Ut. – 50/9,10
पानान्नैरतिसंयुक्तैः सहसा पीडितोऽनिलः।
हिक्कयत्यूर्ध्वगो भूत्वा तां विद्यादन्नजां भिषक्॥6॥ Ma.Ni. – 12/6

- This type of *Hikka* is manifested due to the vitiation of *Vata* which occurs due to the improper food habits, excess intake of alcoholic beverages, excess anger, excess speech, excess walk, laughing and lifting heavy weights.
- This will lead to the vitiation of *Vata* in *Koshtha*.
- This will lead to the forceful movement of *Vata* upwards leading to the production of '*Hik*' sound. This will not afflict the *Marma* (vital parts) and *Indriya* (sense organs).
- By drinking water and eating food, this illness will subside.
- This is a mild and not a life threatening disease.

## Yamala Hikka[27]

चिरेण यमलैर्वेगैर्या हिक्का संप्रवर्तते॥10॥
कम्पयन्ती शिरोग्रीवं यमलां तां विनिर्दिशेत्।
Su.Ut. – 50/10,11; Ma.Ni. – 12/7

- This type of *Hikka* can be seen as production of sound '*Hik*' twice at one episode.
- This will be responsible for involuntary movement of head and neck.

## Asadhya Lakshana of Hikka[28]

आयम्यते हिक्कतो यस्य देहो दृष्टिश्चोर्ध्वं नाम्यते यस्य नित्यम्।
क्षौति यश्चातिमात्रं तौ द्वौ चान्त्यौ वर्जयेद्धिकमानौ॥
अतिसंचितदोषस्य भक्तच्छेदकृशस्य च।
व्याधिभिः क्षीणदेहस्य वृद्धस्यातिव्यवायिनः॥12॥
आसां या सा समुत्पन्ना हिक्का हन्त्याशु जीवितम्।
यमिका च प्रलापार्तिमोहतृष्णासमन्विता॥13॥
अक्षीणश्चाप्यदीनश्च स्थिरधात्विन्द्रियश्च यः।
तस्य साधयितुं शक्या यमिका हन्त्यतोऽन्यथा॥14॥
Ma.Ni. – 12/11-14

- If the person has bending of his or her body with upward gaze frequently[29]
- If the person is having depletion of body tissues[30]
- If the person is having aversion to food substances[31]
- If the person is having hiccups frequently[32]
- If the person is having excess vitiation of *Dosha*
- If the person is suffering from chronic debilitating illness
- If the person is elderly individual[33]

---

GK

[26] In this situation, the person may have emotional factors too along with abnormal food patterns as well as extreme physical activities. This may stimulate abnormal and increased stimulation of diaphragm or phrenic nerve.

[27] This is considered to be milder form of hiccups.

[28] In any type of Hikka, if there is association of Vata Dosha vitiation in particular, then such type of Hikka is considered as Asadhya (incurable) in nature.

[29] This is the condition where the person will have bending (forward or backward) of the body like a bow associated with hiccups. In this situation, the person will have upward gaze continuously or frequently.

[30] When an individual is having excess depletion of the body tissues implies the person is having deficiency of essential nutrients – carbohydrates, fats and proteins and later the person develops the state of metabolic acidosis either ketoacidosis or lactic acidosis. If the person is having episodes of hiccup at this stage, it further worsens the state of metabolic acidosis, because of further rapid nutrient loss.

[31] When an individual is having episodes of hiccups associated with aversion to take food substances, that may lead to metabolic acidosis either ketoacidosis or lactic acidosis. In this instance, the appearance of hiccups may further deteriorate the condition of the patient.

[32] The prognosis of hiccups in this situation depends upon the nature of the cause of the disease manifestation. First of all, identify the cause of the disease. As mentioned earlier in the chapter, Oesophageal disease such as gastro oestophageal reflux disease; abdominal diseases such as bowel diseases, gall bladder disease, hepatitis, pancreatitis, pregnancy; thoracic diseases such as diaphragmatic pleurisy, pericarditis, pneumonia, thoracic surgery and other causes such as alcoholism, uremia and posterior fossa tumours of the brain are considered as the intractable causative factors of the hiccup. Identify the actual cause and give the appropriate treatment.

[33] When the person is having hiccups associated with above said situations, the person will have excessive nutrition loss from the body, which may induce the state of metabolic acidosis either ketoacidosis or lactic acidosis. This state may further deteriorate the condition of the patient.

- If the person is indulged in excess sexual intercourse[34]
- If the person is having *Yamala Hikka* associated with irrelevant speech[35] or pain[36] or confusion[37] or thirst[38]
- Above situations are considered to *Asadhya* (incurable)
- If the person is suffering from *Yamala Hikka* and he is not emaciated or not having severe symptoms and he is having properly functioning *Dhatu* and *Indriya*, then such *Hikka* is considered to be *Sadhya* (curable)[39]

## Key summary of the chapter

- Hikka is the spectrum of the diseases where we are going to observe the Vata and Kapha Dosha vitiation during the pathogenesis. This is characterised by production of specific type of sound 'Hik' frequently as if the organs of the abdomen will come out of the mouth. The verse is mentioned below.

**मुहुर्मुहुर्वायुरुदेति सस्वनो यकृत्प्लिहान्त्राणि मुखादिवाक्षिपन्। स घोषवानाशु हिनस्त्यसून् यतस्ततस्तु हिक्केत्यभिधीयते बुधैः॥3॥**

Ma.Ni. – 12/3

- Hikka afflicts Rasa Dhatu and involves Pranavaha and Rasavaha Srotas with Sanga and Vimargagamana as the type of Srotodushti observed during the Samprapti of the disease. As pranavaha Srotas affliction is seen, there is a possibility of the involvement of Hridaya and Mahasrotas can be observed sooner or later during the progression of the disease.
- As far as Nidana (aetiological factors) of the disease are concerned, abnormal Vata and Kapha Dosha vitiation observed in the Pranavaha Srotas. Rasavaha Srotas and Annavaha Srotas affliction may be observed in due course of time.
- As far as Purvarupa of Hikka are concerned, heaviness of the throat and chest; astringent taste of the mouth and distension of the patients.
- Sankhya Samprapti of Hikka are of 5 types. As per Charaka, 5 types of Hikka are Maha Hikka, Gambhira Hikka, Vyapeta Hikka, Kshudra Hikka and Annaja Hikka. As per Sushruta and Madhavakara, 5 types of Hikka are Annaja Hikka, Yamala Hikka, Kshudra Hikka, Gambhira Hikka and Maha Hikka. Among 5 types, Gambhira Hikka and Maha Hikka are considered as Asadhya (incurable) in nature.
- Normally, the opening of the glottis synchronises with the contraction of the diaphragm, and consequently there is no hindrance to the free entry of air. Hiccups are manifested due to asynchronicity with the functions of glottis and diaphragm. Gastro oesophageal disease, abdominal diseases such as hepatitis, gall bladder disease, pancreatitis; thoracic diseases such as diaphragmatic pleurisy, pericarditis, pneumonia and abdominal or thoracic surgery; Posterior fossa tumours of the brain, alcoholism or uremia. The above said causes are considered as intractable causes of manifestation of hiccups. The term intractable refers to untraceable causes of hiccups.

## Self-Assessment: Questions for Review

### Short essays

- Explain Samprapti and Samprapti Ghataka of Hikka
- Explain the Asadhya Lakshana of Hikka
- Describe Vyapeta Hikka
- Explain Sadhyasadhyata of Hikka

### MCQs

**1. Which of the following is the type of Hikka?**

a. Yamala; b. Vataja;

c. Pittaja; d. Kaphaja

*Answer*: (a)

**2. Dosha dominance observed in the manifestation of Hikka are**

a. Vata Kapha; b. Pitta Kapha;

c. Vata Rajas; d. Kapha Tama

*Answer*: (a)

---

GK

[34] Normally, the opening of the glottis synchronises with the contraction of the diaphragm, and consequently there is no hindrance to the free entry of air. When the person indulges sexual intercourse in the episode of the hiccup, it indicates the person is performing intercourse in the state of asynchronous action of glottis and diaphragm. This may further worsen the episodes of hiccups as this may alter respiratory rate, rhythm and depth of the breathing along with emotional lability during the sexual intercourse.

[35] Posterior fossa tumours of the brain, alcoholism or uremia are considered as intractable causes of hiccup. Above said causes may induce irrelevant speech.

[36] Gastro oesophageal disease, abdominal diseases such as hepatitis, gall bladder disease, pancreatitis; thoracic diseases such as diaphragmatic pleurisy, pericarditis, pneumonia and abdominal or thoracic surgery are associated with pain. The above said causes are considered as intractable causes of manifestation of hiccups.

[37] Refer the context of irrelevant speech.

[38] If the person will have severe form of thirst, the person will have syncopal episodes and above said causes in the context of irrelevant speech may worsen the situation of the patient of hiccup.

[39] When the person is not having any form of Dhatu Kshaya, it implies he will not have sequential depletion of carbohydrates, fats and proteins and electrolytes.

3. **Yamala Hikka is mentioned by**
   a. Sushruta;
   b. Madhavakara;
   c. Both Sushruta and Madhavakara;
   d. Charaka

*Answer*: (c)

4. **Which of the following term is associated with Hikka?**
   a. Dvishtarthasamyogaja;
   b. Nichaya;
   c. Jara;
   d. Annaja

*Answer*: (d)

5. **Which of the following term is associated with Hikka?**
   a. Alasa; b. Nirvritti;
   c. Hidhma; d. Nischaraka

*Answer*: (c)

6. **Vak Stambhana is the Lakshana seen in which of the following?**
   a. Yamala Hikka; b. Chinna Shvasa;
   c. Maha Hikka; d. Kshudra Shvasa

*Answer*: (c)

7. **Sarvagatra Vikampini Hikka is**
   a. Yamala Hikka; b. Gambhira Hikka;
   c. Maha Hikka; d. Annaja Hikka

*Answer*: (c)

8. **Gambhira Hikka is**
   a. Sukhasadhya; b. Krichrasadhya;
   c. Yapya; d. Pratyakhyeya

*Answer*: (d)

9. **Vyapeta Hikka is the contribution of**
   a. Charaka; b. Sushruta;
   c. Vagbhata; d. Kashyapa

*Answer*: (a)

10. **Hikka is considered as a Vyapat of**
   a. Vamana; b. Virechana;
   c. Basti; d. Nasya

*Answer*: (c)

11. **Which of the following Hikka is considered as Sadhya (curable)?**
   a. Vyapeta; b. Annaja;
   c. Gambhira; d. Maha

*Answer*: (b)

12. **The primary muscle involved in the manifestation of hiccups is**
   a. Intercostal muscles;
   b. Pectoralis major;
   c. Sternocliedomastoid;
   d. Diaphragm

*Answer*: (d)

13. **The description of Hikka in Sushrta Samhita is seen in**
   a. Sutra Sthana;
   b. Nidana Sthana;
   c. Chikitsa Sthana;
   d. Uttara Tantra

*Answer*: (d)

14. **Charaka described which of the following disease along with Hikka?**
   a. Kasa; b. Shvasa;
   c. Rajayakshma; d. Kshata Kshina

*Answer*: (b)

15. **As per Charaka, the site of Hikka is**
   a. Phupphusa; b. Amashaya;
   c. Pakvashaya; d. Uras

*Answer*: (b)

### Chapter resources

- https://www.facebook.com/100063775255629/posts/114842453645232/
- Charaka Samhita, Chikitsa Sthana – 17th chapter – Hikkashvasa Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra – 50th chapter – Hikka Pratishedha Adhyaya
- Madhava Nidana – 12th chapter – Hikkashvasa Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Savill's system of clinical medicine, revised by E C Warner, 14th edition, CBS Publishers and Distributors, Delhi 110032, 1998

***

CHAPTER

13

Heart conditions (like heart failure, inflammation or arrhythmia)
Lung conditions (like asthma, COPD or infections)
Anemia
Anxiety

# Shvasa

## Learning Objectives

- To learn the concept of Shvasa
- To learn the Nidana and Samprapti of Shvasa mentioned in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To learn about the types of Shvasa
- To learn about Purvarupa of the disease with current understanding
- To learn about specific clinical features of Tamaka Shvasa with its Avastha Bheda (stage of the disease)
- To know about the Dosha dominance in type of Shvasa
- To know the cardinal feature of each of the type of Shvasa with current understanding
- To learn about Sadhyasadhyata of the disease with current understanding
- To make the differential diagnosis of types of Shvasa

## Introduction

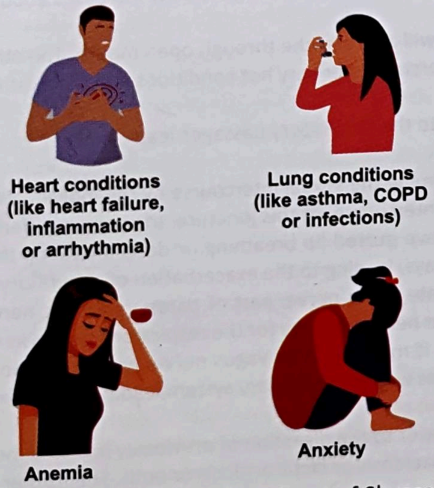

Heart conditions (like heart failure, inflammation or arrhythmia)
Lung conditions (like asthma, COPD or infections)
Anemia
Anxiety

**Figure 27:** Pratyatma Lakshana of Shvasa

Literally, the term *Shvasa* refers to normal breathing. Another reference says *Shvasa* is a type of 13 *Adharaniya Vega* (a reflex mechanism which should not be suppressed by an individual). In the present context, *Shvasa* **(see Figure 27)** is a abnormal breathing where the person will be aware of his breathing pattern. This is a disease which is having the vitiation of *Vata* and *Kapha Dosha,* affliction of *Rasa Dhatu* is seen and involvement of *Pranavaha* and *Rasavaha Srotas* is noted during the pathogenesis of the disease. As *Pranavaha Srotas* affliction is the primary pathogenesis, one can observe the affliction of *Hridaya* and *Mahasrotas* in due course of time because *Srotomula* affliction can be commonest event that can in case of any long standing disease involving any particular *Srotas.*

श्वासत्वं वेगवदूर्ध्ववातत्वंः Madhu, Ma.Ni. – 12/15-1
''श्वासस्तु भस्त्रिकाध्मानसमवातोर्ध्वगामिता''Madhu,Ma.Ni.–12/15-1
कफ-वातात्मकावेतौ पित्तस्थानसमुद्भवौ।
हृदयस्य रसादीनां धातूनां चोपशोषणौ॥8॥ Ca.Ci. – 17/8

## Nidana of Shvasa

रजसा धूमवाताभ्यां शीतस्थानाम्बुसेवनात्।
व्यायामानाम्यधर्माध्वरुक्षान्नविषमाशनात्॥1 1॥
आमप्रदोषादानाहाद्रौक्ष्यादत्यपतर्पणात्।
दौर्बल्यान्मर्मणो घाताद्वन्द्वाच्छुद्ध्यतियोगतः॥1 2॥
अतीसारज्वरच्छर्दिप्रतिश्यायक्षतक्षयात्।
रक्तपित्तादुदावर्ताद्विसूच्यलसकादपि॥1 3॥
पाण्डुरोगाद्विषाश्चैव प्रवर्तेते गदाविमौ।
निष्पावमाषपिण्याकतिलतैलनिषेवणात्॥1 4॥

पिष्टशालूकविष्टम्भिविदाहिगुरुभोजनात्।
जलजानूपपिशितदध्यामक्षीरसेवनात्॥1 5॥
अभिष्यन्युपचाराच्च श्लेष्मलानां च सेवनात्।
कण्ठोरसः प्रतीघाताद्विबन्धैश्च पृथग्विधैः॥1 6॥ Ca.Ci. – 17/11-16

विदाहिगुरुविष्टम्भिरुक्षाभिष्यन्दिभोजनैः।
शीतपानासनस्थानरजोधूमानिलानलैः॥3॥
व्यायाम कर्मभाराध्ववेगाघातापतर्पणैः।
आमदोषाभिघातस्त्री क्षयरोगप्रपीडनैः॥4॥
विषमाशनाध्यनशनैस्तथा संशमनैरपि।
हिक्का श्वासश्च कासश्च नृणां समुपजायते॥5॥ Su.Ut. – 50/3-5

विदाहिगुरुविष्टम्भिरूक्षामिष्यन्दिभोजनैः।
शीतपानाशनस्थानरजोधूमातपानिलैः॥1॥
व्यायामकर्मभाराध्ववेगाघातापतर्पणैः। Ma.Ni. – 12/1-2

- Excess exposure to dust
- Excess exposure to smoke[1]
- Excess exposure to cold air
- Residing in very cold environment for most of the occasions
- Excess intake of ice cold water[2]
- Excess exercise[3]
- Excess indulgence in sexual intercourse[4]
- Excess intake of dry food substances[5]
- Frequent consumption of food substances at improper time and in inappropriate quantity[6]
- When an individual is suffering *Amapradosha* (acute affliction of alimentary canal)[7]

---

GK

1 Each nostril is having certain amount of hairs at the entrance to prevent the movement of smoke and dust particles. The second phase of defence is presence of turbinates in the nasal cavity. The third phase of defence is cilia present in the respiratory mucosa and the fourth phase of defence is mucus secreted by the mucous membranes of respiratory system. These are different levels of defence which prevent the entry of dust and smoke particles of various size which are usually less than 6 micrometers of size. Particles which are of smaller than 0.5 micrometers in diameter are usually suspended in alveolar air and are expelled by expiration. Cigarette smoke particles are usually of 0.3 micrometer and 1/3rd of these particles are precipitated in the alveoli and rest of the particles are suspended in the air and expelled out via expired air.

These particles are considered as irritants to the respiratory airways and thus they are responsible for the manifestation of cough and breathlessness.

2 When the person is exposed to cold environment in the form of cold air or living in cold room or consumption of cold food substances etc, that will lead to the entry of cold air in the respiratory passages. This will be responsible for the contraction of respiratory mucosa leading to dryness of the respiratory mucosa. The same pathological event occurs when a person is breathing through open mouth in case of nasal obstruction or in case of intubation through tracheostomy will lead to cooling and drying of lower respiratory system leading to serious lung crusting and lung infection.

3 It's a question mark, how excess exercise can lead to the occurrence of breathlessness. In the textbook of physiology written by Guyton and Hall, normal oxygen consumption for a young man at rest is 250 ml/ minute. This quantity may increase to 3600 ml/ minute in untrained average male; athletically trained male increases upto 4000 ml/minute and male marathon runner, oxygen consumption may increase to 5100 ml/ minute.

As far as pulmonary ventilation is concerned, at rest pulmonary ventilation is occurring about 9 to 11 litres/ minute and during maximal exercise, the pulmonary ventilation increases about 100 to 110 litres/ minute and maximal breathing capacity increases about 150 to 170 litres/ minute.

When the person is performing exercise with such maximal exercise, the person will also breathe through open mouth. The other determinants of changes in pulmonary ventilation are exercise at higher altitudes and exercise under very hot conditions and pre existing respiratory disease.

- This will lead to the entry of numerous respiratory irritants and microbes into the respiratory passages leading to the obstruction to respiratory passages.

4 When an individual is having previous history of respiratory disease, then performing the sexual intercourse by the individual having compromise in respiratory function, he will have air hunger, soon after doing sexual intercourse. At this juncture, the person suffering from the respiratory disease will have breathing through open mouth. The person will have pursed lip breathing or deep breathing through open mouth, this will lead to entry of dust, smoke or allergen into the respiratory airways, leading to the exacerbation of respiratory symptoms.

5 When a person consumes excess amount of dry food substances, this may irritate vagus nerve, part of parasympathetic nervous system leading to the occurrence of reflex cough. Vagus nerve is considered to be afferent nerve pathway for the respiratory system as well as most of the alimentary canal. Thus, when a person consumes excess dry substances, it may stimulate vagus nerve, which leads to stimulation of medulla oblongata which in turn leads to activation of both alimentary canal as well as respiratory system leading to the appearance of cough. Breathlessness is observed as an accompaniment of cough.

6 Let us take the example of consumption of food substances at large quantity at prior to the digestion of previously ingested meal, this may lead to poor or delayed digestion. This may lead to metabolic acidosis either ketoacidosis or lactic acidosis or both. The further state of this acidosis is respiratory alkalosis. This is charaterised by breathing discomfort.

- Suppose if the person consumes very less amount of food at a particular point of time, it will lead to sequential depletion of carbohydrate, fats and proteins. This may lead to state of metabolic acidosis (ketoacidosis via fat metabolism and lactic acidosis via metabolism in the muscles). Further may develop respiratory alkalosis.
- If the person takes the food substances too early, it may act as Adhyashana or Atyashana (too much amount of food), this may act like effect produced i.e. prolonged digestion of food, which may lead to metabolic acidosis and later there will be respiratory alkalosis.
- If the person consumes food after the peak time of appetite, then that may lead to switching over of metabolic acidosis which further may lead to respiratory allkalosis.

7 When a person is suffering from Amapradosha (acute affliction of alimentary canal), there will be inflammation of alimentary canal, this

- When an individual is suffering from distension of abdomen[8]
- When a person is exposed to dry environment[9]
- When an individual is undergoing the treatment measures leading to depletion of body tissues[10]
- When an individual is having severe debility[11]
- When an person is having injury to *Marma* (vital points)[12]
- *Dvandva*[13]
- When an individual is undergoing excess *Shodhana* (purificatory therapy) line of treatment excessively[14]
- When an individual is suffering from *Atisara, Jvara, Chardi, Pratishyaya, Kshata, Kshaya, Raktapitta, Udavarta, Visuchika* and *Alasaka, Panduroga* and *Visha*[15]
- If a person consumes *Nishpava* (beans), *blackgram, Pinyak* (oil cake), substances prepared from *sesamum* oil, substances prepared from flour, *Shaluka* (esculent root of different kinds of lotus), substances which hampers the movement of *Vata Dosha* in the *Koshtha* (alimentary canal), substances which cause *Vidaha* (burning sensation in the chest and thirst),[16]
- Substances which are heavy to digest
- If the person consumes the meat of aquatic and marshy animals
- If the person consumes curds in excess quantity
- If the person consumes milk without proper boiling
- If the person consumes more amount of *Abhishyandi*

---

**GK**

will lead to the either vomiting or diarrhoea. Due to this, there will be rapid loss of sodium or potassium or calcium ions, this will lead to electrolyte imbalances. This may also lead to metabolic acidosis. Metabolic acidosis can result from

1. Failure of kidneys to excrete metabolic acids normally formed in the body;
2. Formation of excess quantities of metabolic acids in the body;
3. Addition of metabolic acids to the body by ingestion and infusion of acids to the body;
4. Loss of base from the body fluids

When the individual is suffering from inflammation of alimentary canal, that will lead to formation of metabolic acids in the body due to anaerobic metabolism. One of the symptoms observed in metabolic acidosis, is increased ventilation rate.

[8] When an individual is having distension of the abdomen, this may lead to the pressing of the diaphragm towards the heart and lungs to compress. This compression will lead to the compromise in respiratory and cardiac function. One of the earliest clinical manifestation in this situation is breathlessness. In this situation, the ideal line of treatment could be to facilitate the peristaltic movement of the intestine which in turn leads to the decrease in the push of diaphragm towards thorax.

[9] When an individual is exposed to dry environment, that will lead to decreased secretion in the respiratory passages. In such situation,

[10] When the person is undergoing the treatment measures which lead to depletion of the body tissues such as Langhana therapy, that leads to the sequential depletion of carbohydrates, fats and proteins, associated with electrolyte imbalance in the form of hyponatremia or hypokalemia or hypocalcemia. This will lead to the formation of ketoacids and lactic acidosis, which is considered as metabolic acidosis. One of the major symptom manifested in metabolic acidosis is hyperventilation with increased ventilation rate.

[11] When the individual is suffering from severe debilitating illnesses will have extreme nutrient loss from the body such as malignancy or infection such as tuberculosis etc. In this situation, the person will have sequential depletion of carbohydrates, fats and proteins associated with electrolyte imbalances such as hyponatremia or hypokalemia or hypocalcemia. This state is responsible for ketoacidosis and lactic acidosis, a state of metabolic acidosis. One of the cardinal feature of metabolic acidosis is hyperventilation with increased ventilation rate.

[12] When an individual is having trauma to any of the Marma (vital points), that will lead to extreme fluid and nutrient loss from the body. In this situation, the person will have sequential loss of carbohydrates, fats and proteins, hyponatremia, hypokalemia or hypocalcemia. This will lead to the formation of ketoacidosis or lactic acidosis, a state of metabolic acidosis. One of the main clinical feature of metabolic acidosis is hyperventilation with increased ventilation rate.

[13] Ayurveda textbooks described the term Dvandva as Sharirika Guna or Vimshati Guna or 20 qualities, with 10 qualities having exactly opposite nature. For example, Guru (heavy to digest) and Laghu (light to digest) qualities; Shita (cold in touch and potency) and Ushna (hot in touch and potency) qualities etc. If an individual is exposed to such type of qualities at a particular time, that will lead to varied functions inside the body. Alimentary canal and respiratory system are the two systems which are directly coming into exposure to these kinds of Dvandva Guna. Let us take the example of exposure of Shita and Ushna to the respiratory system, Shita quality exposure will lead to the reduced secretion of respiratory mucosa whereas proper secretion of mucus may occur on exposure to hot quality exposure to the respiratory system. If the duration of exposure of Shita quality is more than the exposure of Ushna quality to the respiratory passages, the person may show respiratory symptoms.

[14] When an individual is undergoing the Shodhana (purification) therapy excessively, that will lead to excessive fluid loss from the alimentary canal, which will be responsible for the loss of water from intravascular, interstitial and intracellular compartments sequentially. As the person is having restricted diet, there will be sequential depletion of carbohydrates, fats and proteins, along with electrolyte imbalances such as hyponatremia, hypokalemia or hypocalcemia. This will lead to a state of ketoacidosis or lactic acidosis, a state of metabolic acidosis. One of the major clinical feature of metabolic acidosis is hypervention associated with increased ventilation rate.

[15] Most of the diseases mentioned in this sentence are responsible for profound depletion of nutrients and electrolytes from the body. If above mentioned diseases are observed in the patient for longer time, there will be sequential diminition of carbohydrates, fats and proteins along with hyponatremia or hypokalemia or hypocalcemia. This will lead to a state of ketoacidosis or lactic acidosis, a state of metabolic acidosis. This pathological process is responsible for the manifestation of hyperventilation with increased ventricular rate.

[16] Excess consumption of these substances will lead to the vitiation of Vata or Kapha Dosha depending upon the nature and amount of consumption of food substances. Whenever there is increase of Vata Dosha, that is responsible for the reduced secretion in the respiratory airways and when there is vitiation of Kapha Dosha, that is responsible for the occlusion of respiratory tract secondary to increased mucus secretion.

*Ahara* (substances which cause obstruction in the *Srotas*)

- If the person consumes more amount of *Kapha* vitiating substances[17]
- Suppression of natural urges[18]
- If the person consumes excess amount of food before the digestion of previously ingested meals[19].

## Samprapti of Shvasa

यदा स्त्रोतांसि संरुध्य मारुतः कफपूर्वकः।
विष्वजति संरुद्धस्तदा श्वासान्करोति सः॥45॥ Ca.Ci. – 17/45

विहाय प्रकृतिं वायुः प्राणोऽथ कफसंयुतः।
श्वासयत्यूर्ध्वगो भूत्वा तं श्वासं परिचक्षते॥4॥ Su.Ut. – 51/4

- When an individual is exposed to etiological factors which vitiate *Vata* and *Kapha Dosha*, these *Dosha* get vitiated.
- These factors will lead to the formation of *Ama* in the body which in turn leads to the reverse i.e. upward movement of *Vata Dosha* leading to the manifestation of *Shvasa*.

## Samprapti Ghataka

- **Dosha :** *Vata* and *Kapha Dosha* vitiation with secondary involvement of *Pitta*
- **Dushya :** *Rasa*
- **Srotas :** *Pranavaha* and *Rasavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava sthana :** *Amashaya*
- **Sanchara Sthana :** *Sanchara Sthana*
- **Vyakta Sthana :** *Uras*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Vyadhi Svabhava :** *Ashukari*

## Purvarupa of Shvasa

आनाहः पार्श्वशूलं च पीडनं हृदयस्य च।
प्राणस्य च विलोमत्वं श्वासानां पूर्वलक्षणम्॥20॥ Ca.Ci. – 17/20

प्राग्रूपं तस्य हृत्पीडा भक्तद्वेषोऽरतिः परा।
आनाहः पार्श्वयोः शूलं वैरस्यं वदनस्य च॥6॥ Su.Ut. – 51/6

- Distension of the abdomen[20]
- Pricking type of pain on both sides of the chest
- Discomfort in the centre of the chest or heart region[21]
- Reverse movement of *Pranavata*[22]
- Tastelessness[23]
- Restlessness[24]
- Abnormal taste perception[25]

---

GK

[17] The consumption of these food substances are responsible for the vitiation of Kapha Dosha by default. These substances will lead to the increase of Snigdha, Shita, Guru, Shlakshna qualities in the body and this increase in the respiratory system will be responsible for the appearance of breathlessness in the suffering individual.

[18] Let us take the example of urge of defaecation. When an individual is having the urge of defaecation and he suppresses the urge will lead to the vitiation of Apanavata in Pakvashaya and this will lead to the reverse of Apanavata and this mechanism is termed as Udavarta. In due course of time, upward movement of Apanavata afflicts Samanavata and Pranavata sequentially. Thus, breathlessness can be observed as a late feature in suppression of defaecation.

[19] The term Adhyashana refers to ingestion of meals before the digestion of previously ingested meal. As per fundamentals of Ayurveda, there will be vitiation of Kapha Dosha along with dominance of Vata Dosha.
When an individual is consuming excess intake of food before the digestion, that will lead to the accumulation of partially digested foods in the storage. This will lead to reverse peristaltic movement leading to aspiration pneumonia if gastric contents enter the respiratory passages, thus leading to the mechanisms of cough and breathlessness.

[20] When the individual is presented with distension of the abdomen, it indicates poor peristaltic movements. When there is reduced peristaltic movements, it implies the person is having activation of parasympathetic nervous system. This activation will be responsible for generalised action of parasympathetic nervous system. In the alimentary canal, this will lead to increased alimentary canal secretions. In the respiratory system, the activation of parasympathetic nervous system will lead to the increased mucus secretion in the upper and lower respiratory tract. Thus, accumulation of mucus in the respiratory tract may become a triggering factor for breathlessness.

[21] Two types of chest pain are of significance – centralised and lateralised chest pain. Centralised chest pain where the person feels pain in the retrosternal region is observed in the patients who have mediastinal involvement and lateralised chest pain where the person may complain of pain in one or both sides of the chest is observed when pleural involvement is observed in respiratory disease.

[22] Normal Pranavata has the functions such as Nishvasa (inspiration), Anna Pravesha (deglutition) as far as movement of Pranavata is concerned. When there is reverse movement of Pranavata, the person may have the difficulty in breathing and the person may have regurgitation, nausea or vomiting.

[23] When an individual is presented with breathlessness, it will be associated with autonomic dysfunction. If the person is having activation of sympathetic nervous system, there will be dryness of the mouth, throat and respiratory passages. When there is dryness of the mouth, tastelessness is evident, as there is no salivary secretion.

[24] This is attributable to the electrolyte imbalance. This is usually observed in case of extreme emotional lability such as anxiety, grief, sorrow or anger etc. When the individual has emotional disturbances, he will breathe through open mouth and this may lead to electrolyte imbalance. This can be attributable to hyperventilation syndrome. Hyperventilation syndrome is seen in younger women and it should be differentiated from panic disorder.

[25] When an individual is presented with breathlessness, it will be associated with autonomic dysfunction. If the person is having activation of

## Types of Shvasa

### 5 types of Shvasa as per Charaka, Sushruta and Madhavakara

1. *Mahashvasa*
2. *Urdhva Shvasa*
3. *Chinna Shvasa*
4. *Tamaka Shvasa*
5. *Kshudra Shvasa*

### Dosha dominance of Shvasa as per Madhavakara

(वाताधिको भवेत् क्षुद्रस्तमकस्तु कफोद्भवः।
कफवाताधिकश्चैव संसृष्टश्छिन्नसंज्ञकः।
श्वासो मारुतसंसृष्टो महानूर्ध्वस्ततो मतः॥1॥) Ma.Ni. – 12/ 15-1

- *Kshudra Shvasa* is having *Vata* dominance; *Tamaka Shvasa* is having *Kapha* dominance; *Chinna Shvasa* is having *Kapha Vata* dominance; *Maha Shvasa* and *Urdhva Shvasa* is having *Vata* dominance.

## Mahashvasa[26]

उद्धूयमानवातो यः शब्दवदुः खितो नरः।
उच्चैः श्वसिति संरुद्धो मत्तर्षभ इवानिशम्॥46॥
प्रनष्टज्ञानविज्ञानस्तथा विभ्रान्तलोचनः।
विकृताक्ष्याननो बद्धमूत्रवर्चा विशीर्णवाक्॥47॥
दीनः प्रश्वसितं चास्य दूराद्विज्ञायते भृशम्।
महाश्वासोपसृष्टः स क्षिप्रमेव विपद्यते॥48॥
Ca.Ci. – 17/46-48; Ma.Ni. – 12/18-20

विसंज्ञः पार्श्वशूलार्तः शुष्ककण्ठोऽतिघोषवान्।
संरब्धनेत्रस्त्वायम्य यः श्वस्यात् स महान् स्मृतः॥ Su.Ut. – 51/12

- In this type of *Shvasa, Vata Dosha* is vitiated so that breathing discomfort produced during this stage, there will be loud sound during breathing. The sound can be heard from far away distance like the sound produced by intoxicated bull.
- There will loss of orientation in relation to place and time
- Restlessness
- Rapid movement of eyes
- Patient will be having abnormal movement of the eyes and mouth
- Constipation and retention of urine
- The person appears sick or pathetic and takes lots of stress for breathing or struggles for breathing.
- This type of *Shvasa* is very difficult to cure and it is a fatal sign and the patient dies soon.

### As per Sushruta,

- Altered sensorium
- Pain in sides of the chest
- Dryness of the throat
- Loud sounds during respiration
- Swelling in the eyes

## Urdhva Shvasa[27]

दीर्घं श्वसिति यस्तूर्ध्वं न च प्रत्याहरत्यधः।
श्लेष्मावृतमुखस्रोताः क्रुद्धगन्धवहार्दितः॥49॥
ऊर्ध्वदृष्टिर्विश्यंश्च विभ्रान्ताक्ष इतस्ततः।
प्रमुह्यन् वेदनार्तश्च शुष्कास्योऽरतिपीडितः॥50॥
ऊर्ध्वश्वासे प्रकुपिते ह्यधःश्वासो निरुध्यते।
मुह्यतस्ताम्यतश्चोर्ध्वश्वासस्तस्यैव हन्त्यसून्॥51॥
Ca.Ci. – 17/49-51; Ma.Ni. – 12/21-23

मर्मस्वायम्यमानेषु श्वसम्मूढो मुहुश्च यः।
ऊर्ध्वप्रेक्षी हतरवस्तमूर्ध्वश्वासमादिशेत्॥13॥ Su.Ut. – 52/13

- The person will be having long and deep inspiration, but expiration is difficult due to accumulation of *Kapha* in the *Pranavaha Srotas.*
- The patient will have upward gaze
- Eyes move aimlessly in all directions
- Altered state of consciousness
- Pain in the chest
- Dryness of mouth
- Restlessness
- Confusion
- Darkness in front of the eyes
- The patient may lose his life shortly

### As per Sushruta,

- Affliction of *Hridaya, Basti* and *Shiras* etc *Marma* can be observed in this type of *Shvasa.*
- Breathing discomfort
- Altered state of consciousness frequently
- Upward gaze
- Loss of sound from the throat

## Chinna Shvasa[28]

यस्तु श्वसिति विच्छिन्नं सर्वप्राणेन पीडितः।

---

parasympathetic nervous system, that will lead to hypersecretion of saliva. This may lead to abnormal taste perception.

[26] As in case of Atisara, Chardi, Visuchika and Shodhana Atiyoga, affliction of alimentary canal is seen. This will be associated with extreme fluid loss and electrolyte imbalance as well. During the progression of this disease, Dourbalya, Sharira Rukshata and Ati Apatarpana can be observed which results from undernourishment, hyponatremia in particular.

[27] Hridaya Marmabhighata, Pandu Roga and Raktapitta spectrum of diseases leading to cardiac failure where in pulmonary oedema may be the result due to backward failure..

[28] Shiro Marmabhighata (injury to posterior cranial fossa), Visha Sevana (exposure to toxic substances) where in respiratory centre affliction

न वा श्वसिति दुःखार्तो मर्मच्छेदरुगर्दितः॥52॥
आनाहस्वेदमूर्च्छार्त दह्यमानेन बस्तिना।
विताक्षः परिक्षीणः श्वसन् रक्तैकलोचनः॥53॥
विचेताः परिशुष्कास्यो विवर्णः प्रलपन्नरः।
छिन्नश्वासेन विच्छिन्नः स शीघ्रं प्रजहात्यसून 54
Ca.Ci. – 17/52-55; Ma.Ni. – 12/24-26

आध्मातो दह्यमानेन वस्तिना सरुज नरः।
सर्वप्राणेन विच्छिन्नं श्वस्याच्छिन्नं तमादिशेत्॥11॥ Su.Ut. – 51/11

- The word *Chinna* refers to cut or break in the pattern of breathing. That means the person will be having the break or discontinuity in the pattern of breathing. In other words, in this type of *Shvasa*, the person will have rapid phase of breathing sometimes and sometimes he will have slow phase of breathing.
- This pattern indicates the involvement or injury of *Marma*.
- Distension of the abdomen
- Excess sweating
- Altered state of consciousness
- Burning sensation in lower abdomen
- Instability in the movement of the eyes
- Depletion of the body tissues
- Breathing discomfort
- Reddish discolouration of only one eye
- Loss of consciousness
- Dryness of mouth
- Discolouration of the body parts
- Irrelevant and incomprehensible speech
- The patient will lose his life soon if no proper care is being given.

**As per Sushruta,**

- Distension of the abdomen
- Burning sensation in the lower abdomen
- Pain in the lower abdomen
- Discontinuous breathing pattern

## Tamaka Shvasa[29]

प्रतिलोमं यदा वायुः स्त्रोतांसि प्रतिपद्यते।
ग्रीवां शिरश्च संगृह्य श्लेष्माणं समुदीर्य च॥55॥
करोति पीनसं तेन रुद्धो घुघुरुकं तथा।
अतीव तीव्रवेगं च श्वासं प्राणप्रपीडकम्॥56॥
प्रताम्यत्यतिवेगाच्च कासते सन्निरुध्यते।
प्रमोहं कासमानश्च स गच्छति मुहुर्मुहुः॥57॥
श्लेष्मण्यमुच्यमाने तु भृशं भवति दुःखितः।
तस्यैव च विमोक्षान्ते मुहूर्तं लभते सुखम्॥58॥
अथास्योसते कण्ठः कृच्छ्राच्छक्नोति भाषितुम्।
न चापि निद्रां लभते शयानः श्वासपीडितः॥59॥
पार्श्वे तस्यावगृह्णाति शयानस्य समीरणः।
आसीनो लभते सौख्यमुष्णं चैवाभिनन्दति॥60॥
उच्छ्रिताक्षो ललाटेन विद्यता भृशमर्तिमान्।
विशुष्कास्यो मुहुः श्वासो मुहुश्चैवावधयते॥61॥
मेघाम्बुशीत प्राग्वातैः श्लेष्मलैश्चाभिवर्धते।
स याप्यस्तमकश्वासः साध्यो वा स्यान्नवोत्थितः॥62॥
Ca.Ci. – 17/55-62; Ma.Ni. – 12/27-34

तृड्रस्वेदवमथुप्रायः कण्ठघुघुरिकान्वितः।
विशेषाद्दुर्दिने ताम्येच्छ्रासः स तमको मतः॥8॥
घोषेण महताऽऽविष्टः सकासः सकफो नरः।
यः श्वसित्यवलोऽन्नद्विद् सुप्तैस्तमकपीडितः॥9॥
स शाम्यति कफे हीने स्वपतश्च विवर्धते।
मूर्च्छाज्वराभिभूतस्य ज्ञेयः प्रतमकस्तु सः॥10॥ Su.Ut. – 51/8-10

- The word *Tamaka* refers to darkness. In *Tamaka Shvasa*, the person will be having darkness in front of the eyes associated with breathlessness.
- The vitiated *Vata* will move upwards and occludes the *Srotas*, causing stiffness of the nape of neck and head and provoking *Kapha Dosha*.
- Running nose
- Crepitation or musical sound is observed due to constriction in the passage of air in the *Pranavaha Srotas*
- There will be breathing discomfort which is associated with severe distress and pain.
- There will be severe bouts of cough with little amount of sputum will be spitted out associated with darkness in front of the eyes. When the little amount of sputum is expelled, then the person will have relief for a shorter time period, again the person will have cough and breathing discomfort and these episodes will continue.
- There will be hoarseness of voice due to frequent coughing.
- Speaking will be difficult due to breathing discomfort.
- Attaining recumbent posture to get sleep will be difficult and the person has to take sitting posture during the episode of breathlessness.
- The patient always prefers to have warm or hot food substances and drinks.
- The patient will have swelling around eyes.
- Profuse sweating over forehead.
- Dryness of mouth
- Frequent episodes of breathlessness

---

can be seen where abnormal and non uniform breathing patterns are observed.

[29] Kasa, Pratishyaya, Kshatakshaya (injury to chest), Manasa Dosha (unstable and weak mental functions) leading to the abnormal functioning of the respiratory system. Here, the causes of respiratory system dysfunction comes into play in the manifestation of the disease.

- Worsening of the symptoms of *Shvasa* is seen on exposure to cloudy days, rainy season, winter season, exposure to cold air and on consumption of *Kapha* vitiating etiological factors.

### As per Sushruta,

- Thirst
- Excess sweating
- Vomiting
- Typical sound from the throat and loud sound
- Worsens on abnormal days
- Cough with sputum
- Aversion to take food
- When sputum is expelled, the person gets relief from breathing discomfort
- On lying down posture, there will be worsening of symptoms.

ज्वरमूर्च्छापरीतस्य विद्यात् प्रतमकं तु तम्।
उदावर्तरजोऽजीर्णक्लिन्नकायनिरोधजः॥63॥
तमसा वर्धतेऽत्यर्थं शीतैश्चाशु प्रशाम्यति।
मज्जतस्तमसी वाऽस्य विद्यात् संतमकं तु तम्॥64॥

Ca.Ci. – 17/63, 64

### Types of Tamaka Shvasa

2 types as per *Charaka* depending upon the stage of the illness.

1. **Pratamaka Shvasa** – associated with fever and altered state of consciousness
2. **Santamaka Shvasa** – worsens when the person is having distension of abdomen, exposure to dust, in a state of indigestion, in elderly people, suppression of urges, and in darkness or night time. The administration of cold measures will improve the situation in *Santamaka Shvasa.*

### Kshudra Shvasa[30]

रूक्षायासोद्भवः कोष्ठे क्षुद्रो वात उदीरयन्।
क्षुद्रश्वासो न सोऽत्यर्थं दुःखेनाङ्गप्रबाधकः॥65॥
हिनस्ति न स गात्राणि न च दुःखो यथेतरे।
न च भोजनपानानां निरुणद्ध्युचितां गतिम्॥66॥
नेन्द्रियाणां व्यथां नापि कांचिदापादयेद्रुजम्।
स साध्य उक्तो बलिनः सर्वे चाव्यक्तलक्षणाः॥67॥

Ca.Ci. – 17/65-67

- The word *Kshudra* refers to mild or minor or least important. Thus, when we see the other types of *Shvasa*, this type of *Shvasa* is having less severe symptoms and patient will recover soon.
- This occurs when an individual consumes dry substances and performing slight physical exertion. This will lead to the vitiation of *Vata* in the *Koshtha* (alimentary canal) to move upwards and leads to occurrence of breathing discomfort.
- Slight amount of rest leads to recovery from the discomfort. No treatment is necessary for this type of *Shvasa.*
- The person will have no difficulty in eating and drinking.
- This disease may not stay longer as there is naturally vitiated *Dosha* in the body and they will get pacified easily and because of mild symptoms.

### Sadhyasadhyata[31]

क्षुद्रः साध्यो मतस्तेषां तमकः कृच्छ्र उच्यते।
त्रयः श्वासा न सिध्यन्ति तमको दुर्बलस्य च॥40॥ Ma.Ni. – 12/40

- *Kshudra Shvasa* is *Sadhya* (easily curable)
- *Tamaka Shvasa* is *Krichra Sadhya* (curable with difficulty)
- *Maha Shvasa, Urdhva Shvasa* and *Chinna Shvasa* are *Asadhya* (incurable)

### Differential diagnosis of Shvasa

- **Previous history of the illness:**
  - *Atisara* (diarrhoea), *Chardi* (vomiting), *Visuchika* (gastro enteritis), *Shuddyati* yoga (excess purification procedure) are the conditions where in involvement of alimentary canal are seen in the form of excessive vomiting or *diarrhoea.* Excess fluid loss along with electrolyte imbalance will eventuate during these pathological conditions. *Dourbalya* (whole body weakness), *Sharira Rukshata* (dryness of the body parts or loss of skin turgor) and *Ati Apatarpana* (excess emaciation) are the conditions leading to malnutrition or undernourishment. These are the diseases in which metabolic disturbances may occur during the course of the illness; loss of alkali in *diarrhoea,* malnutrition and starvation leading to ketosis in protracted vomiting leading to metabolic

---

[30] Amapradosha, Anaha, Udavarta, Alasaka where in distension of the abdomen is seen. This is indicative of pushing of the diaphragm towards the chest region leading to breathlessness.

[31] This is determined by the duration of the illness, nature of the symptoms, severity of the symptoms. Kshudra Shvasa is considered to be milder form among the types of Shvasa. That is the reason, this type of Shvasa is easily curable. Tamaka Shvasa is an episodic illness, depending upon the duration of the illness, exposure to the degree of the aetiological factor, this type of Shvasa is curable with difficulty. Maha Shvasa, Urdhva Shvasa and Chinna Shvasa are considered as incurable as the duration of the illness is longer and persistent and symptoms will be persisting throughout the duration of the illness. That is why, the first three varieties of Shvasa mentioned are considered to be incurable

disturbances, hyponatraemia in particular. It can be considered that these disease entities predispose *Mahaswasa*.

- *Hridaya Marmabhighata* (myocardial infarction), *Pandu roga* (anemia) and *Raktapitta* (bleeding diathesis) group of diseases lead to cardiac failure resulting in pulmonary oedema. These diseases may predispose *Urdhwa Swasa*.
- *Siro Marmabhighata* (head injury, injury to the posterior cranial fossa in particular), *Visha Sevana* (exposure to toxic substances) are the conditions where dysfunction of respiratory centre is noticed which is responsible for the abnormal breathing pattern. These may predispose *Chinna Swasa*.
- *Kasa* (cough), *Pratishyaya* (rhinitis), *Kshatakshaya* (injury to the chest) and *Manasa Dosha* (unstable or weak mental functions) are resulting in the abnormal function of respiratory system. These may predispose to *Tamaka Swasa*. Definitely the same factors may initiate the obstructive airway disease i.e. bronchial asthma.
- *Amapradosha* (Diseases of the alimentary canal due to improper digestion), *Anaha* (distension of the abdomen), *Udavarta* (Abnormal reversal in the course of *vata* with in the alimentary tract), *Alasaka* (distension of the abdomen due to the accumulation of undigested food in the *Amashaya* i.e. stomach) are responsible for the distension of the abdomen. The above mentioned conditions are primarily responsible for impaired movement of diaphragm. As it is primary muscle of respiration breathlessness will be evident. These features are observed in the patients suffering from *Kshudraswasa*.

- **Duration of the illness:** Duration of the illness is another criterion by which differentiation of types of Swasaroga can be simplified. Short duration of the illness is the typical feature of Mahaswasa, Urdhwaswasa, Chinna Swasa. In contrast to this, patient of Tamaka Swasa or obstructive airway disease usually gives a long history of illness. The duration of Kshudraswasa or respiratory distress due to abdominal conditions is variable.
- **Mode of onset:** Like the duration of the illness, mode of onset of Swasa is also useful in the differential diagnosis of Swasa. Shighra Utpatti or sudden onset of Swasa or breathless is suggestive of Mahaswasa, Urdhwaswasa as well as Chinna Swasa. Chira Utpatti or gradual onset of breathlessness is most commonly observed in Tamaka Swasa and Kshudra Swasa. But sudden attack of Swasa can also be frequently observed in the patients of Tamaka Swasa.
- **Character of Shvasa: Character of Swasa:** This is one of the most important and useful criteria to differentiate the *Swasa roga*.
  - **Prana Vilomata:** In *Tamaka Swasa* and *Kshudra Swasa* there will be laboured breathing with the predominance of expiration. Due to bronchospasm, patient has to put more effort during expiration in bronchial asthma26. Inspiration is restricted due to reduced diaphragmatic movement in case of abdominal distension and hence expiration is predominant.
  - **Deergham Ati Ghoshavan Swasiti** – *Sudirgha Sashabda Swasa* – i.e. loud and prolonged respiration that can be heard from a distance is characteristic of *Mahaswasa*. Similarly in case of metabolic acidosis, hyperventilation is evident; breathing is intense with hissing and known as Kussmaul's breathing.
  - **Sudirgham Urdhwa Swasa Nishwasa Rahita** – *Hraswa Nishwasa yukta* - in this breathing abnormality, patient shows prolonged expiration with no or shallow inspiration and is diagnostic of *Urdhwa Swasa*. Also in acute pulmonary oedema there will be asphyxiation as the alveoli that are flooded with fluid and breathing is rapid and no transfer of oxygen is possible.
  - **Nishwasya Punah Kshanantena Shwasiti** – *Vicchinnam Antara Antara Shwasiti* – Phase of respiration and no respiration occurring alternatively is pathognomonic of *Chinna Swasa*. In comparison to this when the disturbed functioning of respiratory centre develops, the respiration will be irregular. Alternative gradual appearance of phase of *apnea* and hyperventilation is characteristic of Cheyne Stokes breathing. Waxing and waning of respiration is also suggestive of this periodic breathing.
- **Course of the illness:** Course of the illness is not uniform in different types of *Swasa roga*. The course of the illness may be *Nirantara* (persistent) or *Santara* (associated with Vega). *Nirantara* (persistant) symptoms seen in *Mahaswasa, Urdhwaswasa* and *Chinnaswasa* which may result in the death of the patient. In case of metabolic disturbances, acute pulmonary oedema and disturbance of respiratory centre, the symptoms are persistent. Definitely the prognosis is poor if energetic treatment is not being adopted. Occasionally in *Tamaka Swasa*, the course of the illness may be prolonged with continuous manifestation of symptoms usually associated with exacerbation and remission. *Santara Vegavan* or episodic symptoms and long course of the illness are typically suggestive of *Tamaka Swasa*. The course of the illness is not specific in *Kshudra Swasa*. It may continuous or intermittent depending upon the inducing or triggering factor.
- **Severity of illness:** Severity may be *Mridu, Daruna* or *Aniyamita* in different types of *Swasaroga*. The

illness will be *Daruna* (severe) in case of *Mahaswasa, Urdhwaswasa* and *Chinnaswasa*. In these types of *Swasa*, the patient will be confined to bed and incapable of doing any activities. Apart from this, the patient may exhibit different states of altered consciousness like *Tamodarshana* (darkness in front of eyes), loss of orientation of space and time (*Pranashta Jnana Vijnana*), delirium (*Pralapa*), *Vichetana* (complete loss of consciousness). The severity of illness also holds good for metabolic disturbances, acute pulmonary oedema and distress of the respiratory centre. *Mridu* severity of the illness is typical feature of *Kshudra Swasa*. Here, the functional ability of the patient is altered negligibly whereas, *Aniyamita* severity is considered to be variable which is observed in *Tamaka Swasa*. The variable severity from mild to severe is also observed in bronchial asthma. Degree of severity can also be assessed by the amount of physical exercise and development of *dyspnoea*.

- Associated phenomena: The symptom Swasa is usually associated with other symptoms. These associated symptoms are dissimilar in different types of Swasa. And for the same reason, this can be effectively used in the differential diagnosis of Swasa.
  - *Pranashta Jnana Vijnana* (loss of orientation of space and time), *Baddha Mutra varchas* (retention of urine and constipation) are usually associated with *Mahaswasa*. This can also happen in metabolic disturbances.
  - *Shleshmavrita Mukhasrota* (flooding of mouth and nostrils with respiratory secretions), *Urdhwadrishti* (upward gaze), *Vibhrantakshi* (unstable eye movements), *Pramoha* (confused state) are associated in case of *Urdhwaswasa*. These are also observed in acute pulmonary *oedema*.
  - In case of *Chinna swasa, Marmacheda ruk* (chest discomfort), *Bastidaha, Mutranirodha* (disturbance of urinary system), *Pralapa* (delirium), *Murcha* (altered state of consciousness) are seen. These symptoms though non specific, may be seen in the patients who are having disturbance in respiratory centre and are depending upon the causative illness.
  - The symptoms like *Sakapha Kasa* (productive cough), *Pinasa* (running nose), *Gurghuraka* (rattling), *Kanthodhwamsa* (soreness of throat), *Vishushkasya* (dryness of mouth), *Lalatasweda* (sweating in the forehead region), Ut *shunaksha* (oedema around eyes) are seen in the patient of *Tamaka Swasa*. All these symptoms are observed in the patient of bronchial asthma.
  - Associated symptoms are usually absent in *Kshudraswasa*.
- **Modifying factors:** Severity of *Swasa* is frequently altered by some aggravating and relieving factors. By identifying these factors one can differentiate the types of *Swasa*. Aggravation of the *Swasa* occurs in case of *Amuchyamana Shleshma* (lack of expectoration), *Shayane Sthiti* (patient in recumbent posture), *Meghambu Shita Pragvata* (exposure to cold and cloudy weather), *Shleshmala Ahara Sevana* (consumption of food and drinks which increase the *Kapha Dosha* in the body), *Raja Sevana* (exposure to dust), *Dhuma Sevana* (exposure to smoke), *Ratrisamaya* (night hours), *Manodosha* (emotional factors). Relief from *Swasa* occurs in case of *Shleshma Nishtivana* (expectoration of sputum), *Ushna Upachara* (warm environment and food) and *Asine Sukhanubhava* (more comfort in upright posture).
- **Seasonal variations:** The incurable types of *Swasa* that include *Mahaswasa, Urdhwaswasa* and *Chinnaswasa* have fatal outcome, manifests comparatively for a short duration. Hence, seasonal changes do not influence the severity of the illness. In contrast to this, in case of *Tamaka Swasa*, worsening of the symptoms is frequently noted in rainy and winter seasons. In case of *Kshudra Swasa* also, no variation in the severity of the symptoms was noted during the changes in the season. Thus, seasonal influence in the symptoms of *Swasa* is always confirmatory of *Tamaka Swasa*.

## Key summary of the chapter

**श्वासत्वं वेगवदूर्ध्ववातत्वं:** Madhu, Ma.Ni. – 12/15-1

**"श्वासस्तु भस्त्रिकाध्मानसमवातोर्ध्वगामिता"** Madhu, Ma.Ni. – 12/15-1

- As far as the Nidana of Shvasa are concerned, the factors which exacerbate the Vata and Kapha Dosha are responsible for the manifestation of Shvasa. This is a Pranavaha Sroto Vikara afflicting Rasa Dhatu with Sanga and Vimargagamana as the type of Srotodushti involved during the pathogenesis of the disease. This is Amashayasamuttha Vikara.
- Anaha (distension of the abdomen), Parshvashula (pain on sides of the chest), Hridayasya Pidana (discomfort in the chest), Pranasya Vilomata (breathlessness during expiration) are Purvarupa of the disease as per Charaka.
- Upward movement of vitiated Vata is the main cardinal feature of the disease.
- 5 types of Shvasa are mentioned: Mahashvasa, Urdhva Shvasa, Chinna Shvasa, Tamaka Shvasa and Kshudra Shvasa. Among the 5 types, Mahashvasa, Urdhva Shvasa and Chinna Shvasa are incurable; Tamaka Shvasa is treatable with much difficulty as it is considered to be episodic illness; Kshudra Shvasa is easily curable.

## Self-Assessment: Questions for Review

### Long essay questions

- Explain the Nidana, Samprapti, Purvarupa, Bheda, Lakshana and Sadhyasadhyata of Shvasa
- Describe the causes, Samprapti, Lakshana and Bheda of Tamaka Shvasa

### Short essay questions

- Write in brief about Maha Shvasa
- Describe Chinna Shvasa
- Write Nidana, Lakshana and Sadhyasadhyata of Urdhva Shvasa
- Describe the Lakshana of Tamaka Shvasa
- Describe Dosha Pradhanya observed in different types of Shvasa

### MCQs

**1. The type of Shvasa which is easily curable?**

a. Kshudra Shvasa;
b. Maha Shvasa;
c. Chinna Shvasa;
d. Urdhva Shvasa

*Answer*: (a)

**2. Which of the following type of Shvasa is not incurable?**

a. Maha Shvasa;
b. Tamaka Shvasa;
c. Chinna Shvasa;
d. Urdhva Shvasa

*Answer*: (b)

**3. Gurghuraka is the specific Lakshana which is observed in which of the following disease?**

a. Tamaka Shvasa;
b. Chinna Shvasa;
c. Maha Shvasa;
d. Urdhva Shvasa

*Answer*: (a)

**4. Santamaka and Pratamaka are the types of**

a. Chinna Shvasa;
b. Maha Shvasa;
c. Tamaka Shvasa;
d. Urdhva Shvasa

*Answer*: (c)

**5. Dosha dominance observed in Tamaka Shvasa are**

a. Vata and Kapha;
b. Vata and Rajas;
c. Kapha and Tama;
d. Pitta and Kapha

*Answer*: (a)

**6. In which type of Shvasa, the shape of the patient's chest becomes like that of chest of Kapota?**

a. Urdhva Shvasa;
b. Maha Shvasa;
c. Tamaka Shvasa;
d. Chinna Shvasa

*Answer*: (c)

**7. Which of the following Lakshana is not observed in Tamaka Shvasa?**

a. Gurghuraka;
b. Asino Labhate Saukhyam;
c. Vicchinna Shvasa;
d. Pinasa

*Answer*: (c)

**8. Which of the following type of Shvasa is considered as Yapya (manageable)?**

a. Maha Shvasa; b. Chinna Shvasa;
c. Urdhva Shvasa; d. Tamaka Shvasa

*Answer*: (d)

**9. Dirgha Ucchvasa and Pratihata Nishvasa are seen in**

a. Maha Shvasa; b. Urdhva Shvasa;
c. Chinna Shvasa; d. Kshudra Shvasa

*Answer*: (b)

**10. Pratamaka Shvasa is**

a. Tamaka Shvasa with Udavarta;
b. Tamaka Shvasa with Jvara and Murcha;
c. Tamaka Shvasa with Ajirna;
d. Tamaka Shvasa with Pinasa

*Answer*: (b)

**11. As per Charaka, the site of disease Tamaka Shvasa is**

a. Phupphusa; b. Amashaya;
c. Uras; d. Nasa

*Answer*: (b)

**12. The nature of Srotodushti observed in Tamaka Shvasa is/ are**

a. Sanga only;
b. Sanga and Vimarga Gamana only;
c. Vimarga Gamana only;
d. Atipravritti only

*Answer*: (b)

**13. Vishirna Vak and Vibhranta Lochana are the Lakshana observed in**

a. Chinna Shvasa;
b. Tamaka Shvasa;

c. Urdhva Shvasa;

d. Maha Shvasa

*Answer*: (d)

**14. As per Charaka, which of the following is mentioned along with Shvasa as killer disease which has similar Nidana among both of the diseases?**

a. Kasa; b. Rajayakshma;

c. Shosha; d. Hikka

*Answer*: (d)

**15. Which of the following is mentioned as Purvarupa of Shvasa as per Charaka Samhita?**

a. Ura Shula; b. Parshva Shula;

c. Udara Shula; d. Basti Shula

*Answer*: (b)

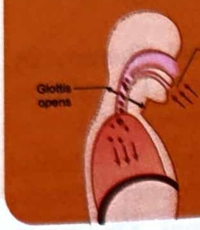
### Chapter resources

- https://my.clevelandclinic.org/health/symptoms/16942-dyspnea
- Monier Williams, A Sanskrit - English dictionary, Prof. E. Leumann and Prof C Cappeller, editors. Bharatiya Granth Niketan, New Delhi, 2007. p.1106
- Charaka Samhita, Chikitsa Sthana – 17th chapter – Hikkashvasa Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra – 50th chapter – Hikka Pratishedha Adhyaya
- Sushruta Samhita, Uttara Tantra – 51st chapter – Shvasa Pratishedha Adhyaya
- Madhava Nidana – 12th chapter – Hikka Shvasa Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Diagnostic approach to diagnose the type of Swasa. Gopikrishna S, Shrinivas Acharya G. IAMJ: Volume 6, Issue 9, September - 2018

***

CHAPTER

14



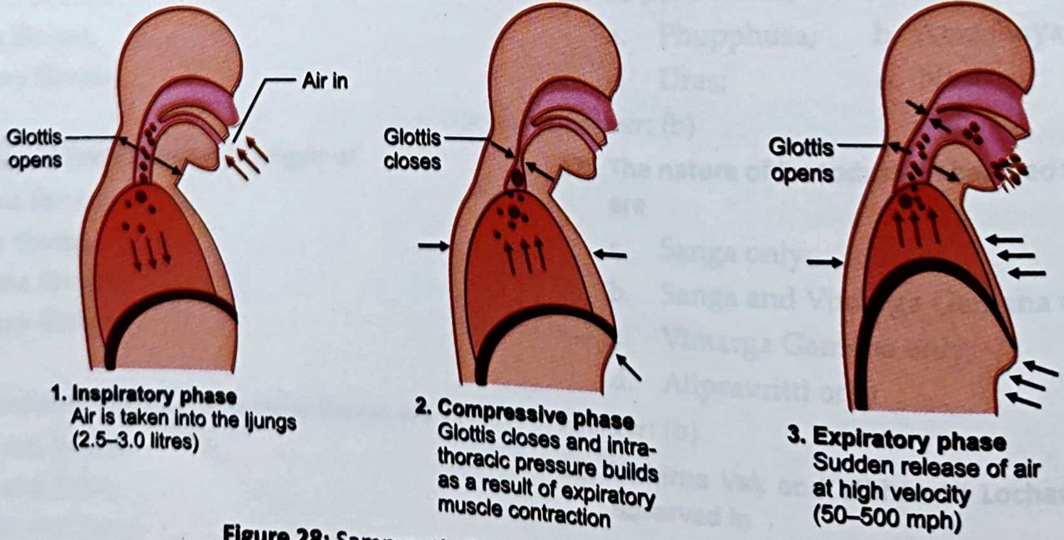
# Kasa

## Learning Objectives

- ⇨ To learn the concept of Kasa
- ⇨ To learn the Nidana and Samprapti of Kasa mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To know the types of Kasa
- ⇨ To know the Purvarupa of Kasa with current understanding
- ⇨ To differentiate the types of Kasa based on Dosha dominance
- ⇨ To learn about the Sadhyasadhyata of Kasa with current understanding
- ⇨ To learn the differential diagnosis of Kasa based on the Lakshana of Kapha
- ⇨ To learn the differential diagnosis of Kshayaja Kasa and Rajayakshma
- ⇨ To learn the differential diagnosis of Kshataja Kasa and Kshata Kshina

## Introduction

*Kasa*[1] is the spectrum of diseases where we can observe the involvement *Pranavaha Srotas*. This is characterised by explosive expiration where in the irritating contents present in *Pranavaha Srotas* is being eliminated. This is manifested in an individual due to abnormal function of *Pranavata* and *Udanavata*. Depending upon the dominance of *Dosha* during the progression, we can observe the dominance of *Vata* (dry cough) or *Kapha* (productive cough). *Sanga* and *Vimargagamana* are observed in this disease. This is categorised under *Saririka Vikara* and *Amashayasamuttha Vikara* of *Doshabala Pravritta Vikara* of *Adhyatmika Vikara*.



**1. Inspiratory phase**
Air is taken into the ljungs (2.5–3.0 litres)

**2. Compressive phase**
Glottis closes and intra-thoracic pressure builds as a result of expiratory muscle contraction

**3. Expiratory phase**
Sudden release of air at high velocity (50–500 mph)

**Figure 28:** Samprapti of Kasa (mechanism of cough)

---

[1] Cough is observed in case of irritation of respiratory system.

## Derivation of Kasa

प्राणो ह्युदानानुगतः प्रदुष्टः संभिन्न कांस्यस्वनतुल्यघोषः।
निरेति वक्रात्सहसा सदोपः कासः स विद्वद्भिरुदाहृतस्तु॥ Su.Ut. – 52/4
कसनात्कास उच्यते
Ca.Ci. – 18/8

This disease is characterised by the production of specific type of sound i.e. sound produced by tapping the broken bronze vessel. This is facilitated by the combined action of *Prana* and *Udana Vata*.

## Nidana of Kasa

कसनात्कास उच्यते (धूमोपघाताद्रजसस्तथैव व्यायाम-रूक्षान्ननिषेवणाच्च।
वेगावरोधात् क्षवथोस्तथैव ) विभार्गगत्वादपि भोजनस्य
Su.Ut. – 52/3, Ma.Ni. – 11/1

विदाहिगुरुविष्टम्भिरुक्षाभिष्यन्दिभोजनैः।
शीतपानासनस्थानरजोधूमानिलानलैः॥3॥
व्यायाम कर्मभाराध्ववेगाघातापतर्पणैः।
आमदोषाभिघातस्त्रीक्षयरोगप्रपीडनैः॥4॥
विषमाशनाध्यनशनैस्तथा संशमनैरपि।
हिक्का श्वासश्च कासश्च नृणां समुपजायते॥5॥ Su.Ut. – 50/3-5

- Exposure to smoke
- Exposure to dust[2]
- Excess performance of exercise[3]
- Excess intake of dry food substances[4] such as *Chanaka* (chick pea) etc
- Displacement of ingested food moving into the *Pranavaha Srotas*[5]
- Suppression of natural urges, sneezing[6] in particular
- Consumption of *Vidahi*[7] (responsible for the burning sensation in chest and thirst) food substances in excess such as *Maricha* (black pepper), *Sarshapa* (mustard seeds) or alcoholic beverages
- Excess consumption of *Guru* (heavy to digest) substances[8]
- Excess consumption of *Vishtambhi*[9] (substances leading to poor movement in the alimentary canal) *Ahara* such as *jackfruit* or *Karira* – Capparis aphylla, a thorny plant grown in deserts eaten by camels
- Excess consumption of *Abhishyandi*[10] (substances responsible for *Srotorodha*) *Ahara* such as consumption of fish, blackgram and curds
- Exposure of the individual to cold atmosphere such as cold drinks intake, staying in air conditioned room, cold air exposure etc[11]
- Excess performance of physically debilitating exercise
- Lifting heavyweight more than one's capacity

---

[2] Each nostril is having certain amount of hairs at the entrance to prevent the movement of smoke and dust particles. The second phase of defence is presence of turbinates in the nasal cavity. The third phase of defence is cilia present in the respiratory mucosa and the fourth phase of defence is mucus secreted by the mucous membranes of respiratory system. These are different levels of defence which prevent the entry of dust and smoke particles of various size which are usually less than 6 micrometers of size. Particles which are of smaller than 0.5 micrometers in diameter are usually suspended in alveolar air and are expelled by expiration. Cigarette smoke particles are usually of 0.3 micrometer and 1/3rd of these particles are precipitated in the alveoli and rest of the particles are suspended in the air and expelled out via expired air.

These particles are considered as irritants to the respiratory airways and thus they are responsible for the manifestation of cough.

[3] When an individual performs strenuous exercise, that will increase the air hunger in the individual. This air hunger makes the individual to take the deep breath through open mouth. During this time, the person may have the entry of dust or other particles enter into the respiratory passages, leading to the irritation and inflammation of upper and lower respiratory passages, with the presenting complaint of cough.

[4] As per fundamentals of Ayurveda, any substance consumed responsible for the vitiation of Vata Dosha, may have an impact on Pranavaha Srotas also leading to the manifestation of Kasa. As per current understanding, the person who has consumed dry food substances, that will lead to the stimulation of parasympathetic nervous system initially, in due course of the time, there may be a possibility of parasympathetic nervous system. When the parasympathetic nervous system is stimulated, in the alimentary canal, there is increased secretion of juices. In respiratory system, during the parasympathetic nervous stimulation, respiratory secretions are increased which initiate the act of coughing.

[5] When ingested food displaces into the Pranavaha Srotas (respiratory passages), that will lead to aspiration pneumonia with presenting complaints of productive cough, fever, breathlessness.

[6] Sneezing is a protective reflex mechanism which becomes active when an individual is exposed to dust, smoke or any respiratory allergen either through nose or mouth. If a man suppresses this reflex, then the dust, smoke or respiratory allergen likely to travel from the upper respiratory tract to lower respiratory tract, leading to the clinical presentation of cough, breathlessness, fever etc,

[7] Consumption of these substances such as black pepper, mustard seeds or alcoholic beverages will lead to the vitiation of Pitta and Vata Dosha in the body.

[8] The consumption of these food substances are responsible for the vitiation of Kapha Dosha by default. These substances will lead to the increase of Snigdha, Shita, Guru, Shlakshna qualities in the body and this increase in the respiratory system will be responsible for the appearance of breathlessness in the suffering individual.

[9] The excess consumption of Vishtambhi substances will lead to the abnormal increase of Vata Dosha in the body.

[10] Excess consumption of Abhishyandi substances leads to the excess secretion in alimentary canal, respiratory system. In the respiratory system, it causes irritation of the respiratory system leading to the manifestation of cough, breathlessness etc.

[11] When an individual is exposed to cold atmosphere, that will lead to the dryness of the respiratory mucosa and in this situation, the dust, smoke or allergen directly attach to the respiratory mucosa leading to cough. In the trachea and bronchi, that will lead to the broncho constriction and constriction of trachea and this will lead to breathlessness and cough.

- Excess walking[12]
- Suppression of natural urges[13]
- Doing the measures which lead to depletion of body tissues
- If the person is having presence of *Ama* in the body
- If the person is performing excess sexual activity[14]
- If the person is suffering from other chronic debilitating illness[15]
- If the person is having the habit of consuming the food at improper time and improper quantity[16]
- If the person is consuming the food before the digestion of previously ingested meals[17]

## Samprapti of Kasa

अधःप्रतिहतो वायुरूर्ध्व स्त्रोतः समाश्रितः।
उदानभावमापन्नः कण्ठे सक्तस्तथोरसि॥6॥
आविश्य शिरसः खानि सर्वाणि प्रतिपूरयन्।
आभञ्जन्नाक्षिपन देहं हनुमन्ये तथाऽक्षिणी॥7॥
नेत्रे पृष्ठमुरः पार्श्वे निर्भुज्य स्तम्भयंस्ततः।
शुष्को वा सकफो वाऽपि कसनात्कास उच्यते॥8॥ Ca.Ci. – 30/6-8

- The vitiated *Dosha* from downwards gets further vitiated due to above said etiological factors and tend to move upwards towards direction of *Pranavaha Srotas*.
- This vitiated *Vata* will move towards *Uras* (chest) and *Kantha* (throat) and comes forcefully through mouth producing a typical sound.
- During this process, there will be contraction of chest muscles, abdomen, neck, face, back making the body bend forwards during the act of coughing.
- There can be either dry or productive cough.

## Samprapti Ghataka

- **Dosha :** *Kapha* and *Vata* (*Prana* and *Udana*)
- **Dushya :** *Rasa*
- **Srotas :** *Pranavaha* and *Rasavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira* (as *Rasa Dhatu* involvement is present) and *Uras* region (chest)

---

[12] It's a question mark, how excess exercise can lead to the occurrence of breathlessness. In the textbook of physiology written by Guyton and Hall, normal oxygen consumption for a young man at rest is 250 ml/ minute. This quantity may increase to 3600 ml/ minute in untrained average male; athletically trained male increases upto 4000 ml/minute and male marathon runner, oxygen consumption may increase to 5100 ml/ minute.

As far as pulmonary ventilation is concerned, at rest pulmonary ventilation is occurring about 9 to 11 litres/ minute and during maximal exercise, the pulmonary ventilation increases about 100 to 110 litres/ minute and maximal breathing capacity increases about 150 to 170 litres/ minute.

When the person is performing exercise with such maximal exercise, the person will also breathe through open mouth. The other determinants of changes in pulmonary ventilation are exercise at higher altitudes and exercise under very hot conditions and pre existing respiratory disease.

This will lead to the entry of numerous respiratory irritants and microbes into the respiratory passages leading to the obstruction to respiratory passages.

[13] Let us take the example of urge of defaecation. When an individual is having the urge of defaecation and he suppresses the urge will lead to the vitiation of Apanavata in Pakvashaya and this will lead to the reverse of Apanavata and this mechanism is termed as Udavarta. In due course of time, upward movement of Apanavata afflicts Samanavata and Pranavata sequentially. Thus, breathlessness can be observed as a late feature in suppression of defaecation.

[14] When an individual is susceptible to respiratory disease, and if the individual is indulged in sexual intercourse, then the person will have air hunger, this will lead to breathing through open mouth and the person may have direct entry of dust, smoke or allergen and the person develops cough.

[15] When an individual is suffering from either cardiac disease or upper alimentary canal disease may usually develop respiratory in due course of time.

[16] Let us take the example of consumption of food substances at large quantity at prior to the digestion of previously ingested meal, this may lead to poor or delayed digestion. This may lead to metabolic acidosis either ketoacidosis or lactic acidosis or both. The further state of this acidosis is respiratory alkalosis. This is charaterised by breathing discomfort.

- Suppose if the person consumes very less amount of food at a particular point of time, it will lead to sequential depletion of carbohydrate, fats and proteins. This may lead to state of metabolic acidosis (ketoacidosis via fat metabolism and lactic acidosis via metabolism in the muscles). Further may develop respiratory alkalosis.
- If the person takes the food substances too early, it may act as Adhyashana or Atyashana (too much amount of food), this may act like effect produced i.e. prolonged digestion of food, which may lead to metabolic acidosis and later there will be respiratory alkalosis.

If the person consumes food after the peak time of appetite, then that may lead to switching over of metabolic acidosis which further may lead to respiratory allkalosis.

[17] The term Adhyashana refers to ingestion of meals before the digestion of previously ingested meal. As per fundamentals of Ayurveda, there will be vitiation of Kapha Dosha along with dominance of Vata Dosha.

When an individual is consuming excess intake of food before the digestion, that will lead to the accumulation of partially digested foods in the storage. This will lead to reverse peristaltic movement leading to aspiration pneumonia if gastric contents enter the respiratory passages, thus leading to the mechanisms of cough and breathlessness.

- **Vyakta Sthaana :** *Vaktra*
- **Rogamarga :** *Abhyantara* and *Bahya*

## Purvarupa of Kasa

पूर्वरूपं भवेत्तेषां शूक पूर्णगलास्यता।
कण्ठे कण्डूश्च भोज्यानामवरोधश्च जायते॥5॥ Ca.Ci. – 18/5
भविष्यतस्तस्य तु कण्ठकण्डूभोज्योपरोधो गलतालुलेपः।
शब्दवैषम्यमरोचकोऽग्निसादश्च लिङ्गानि भवन्त्यमूनि॥6॥
Su.Ut. – 52/6

- Sensation of pricking of throat and oral cavity by thorns[18]
- Itching in the throat[19]
- Sense of obstruction of food in the throat[20]
- Coating in the throat and palate[21]
- Hoarseness of voice[22]
- Tastelessness[23]
- Loss of appetite[24]

## Types of Kasa

### 5 types of Kasa: as per Charaka, Sushruta and Madhavakara

1. *Vataja Kasa*
2. *Pittaja Kasa*
3. *Kaphaja Kasa*
4. *Kshataja Kasa*
5. *Kshayaja Kasa*

## Vataja Kasa

रूक्षशीतकषायाल्पप्रमितानशनं स्त्रियः।
वेगधारणमायासो वातकासप्रवर्तकाः॥10॥
हृत्पार्श्वोरः शिरः शूलस्वरभेदकरो भृशम्।
शुष्कोरःकण्ठवक्त्रस्य हृष्टलोम्नः प्रताम्यतः॥11॥
निर्घोष दैन्यस्तनन दौर्बल्यक्षोभमोहकृत्।
शुष्ककासः कफं शुष्कं कृच्छ्रान्मुक्त्वाऽल्पतां व्रजेत् स्निग्धाम्लल
वणोष्णैश्च भुक्तपीतैः प्रशाम्यति।
ऊर्ध्ववातस्य जीर्णेने वेगवान्मारुतो भवेत्॥13॥ Ca.Ci. – 18/10-13
हृच्छङ्गमूर्धोदरपार्श्वशूली क्षामाननः क्षीणवल खरौजाः।
प्रसक्तमन्तः कफमीरणेन कासेत्तु शुष्कं स्वरभेदयुक्तः॥7॥
Su.Ut. – 52/7

हृच्छङ्खमूर्धोदरपार्श्वशूली क्षामाननः क्षीणबलस्वरौजाः।
प्रसक्तवेगस्तु समीरणेन भिन्नस्वरः कासति शुष्कमेव॥5॥
Ma.Ni. – 11/5

- Consumption of dry substances in excess
- Consumption of cold substances in excess
- Consumption of food substances having astringent taste
- Consumption of little amount of food
- Consumption of food with single *Rasa* dominance
- Excess indulgence in sexual intercourse
- Suppression of natural urges
- Excess performance of physically debilitating activities

## Lakshana of Vataja Kasa[25]

- Pricking type of pain in chest, sides of the chest,

---

GK

[18] Sensation of pricking may indicate the ongoing inflammatory changes in the throat and oral cavity. When there is inflammatory reaction, that will lead to the protective mechanism in order to remove the cause of inflammatory reaction, that will lead to the initiation of cough. Here the patient may have the pricking type of pain due to the ongoing inflammatory reaction.

[19] Itching in throat region can be seen if there is any foreign body present in the region or inflammatory reaction in the throat region. As throat is the route for respiratory system as well as alimentary canal, if the pathological event prominent in respiratory system, then the person will have cough.

[20] This is another clinical presentation which can be associated with itching sensation in the throat region. This is specifically seen in disturbances of mouth, oral cavity, tonsils, pharynx. E.g. enlargement of tonsils. As already discussed, mouth is the route for food and air entry. That is the reason, if the person is having initiation of pathological process in this region and if it progresses towards respiratory airways, then this could be premonitory symptom for cough manifestation.

[21] When the person is having deficiency in salivary secretion, there will be proliferation of microorganisms in the oral cavity, and these microorganisms will multiply because of the remnants of food in around the teeth. As there is reduced salivary secretion, the person will not swallow. This will lead to the coating of the tongue and palate.

[22] The presence of hoarseness of voice is specially observed in the diseases of upper respiratory passages, larynx in particular. Any condition of nose, nasopharynx, para nasal sinuses, oropharynx will lead to the hoarseness of the voice as the normal movement of air is in the direction of the nose to larynx. Still, if the pathological events continue to progress, then the person may present with clinical features of lower respiratory tract disease. Thus, hoarseness of voice can be a premonitory symptom of respiratory disease, lower respiratory airways in particular.

[23] As there is less salivary secretion, there is no proper contact of saliva with food during food ingestion. In other words, taste buds cannot perceive the taste because of absence of contact of saliva and food with taste buds. That is the reason, the person may have tastelessness.

[24] This can be attributable to the activation of sympathetic nervous system as we have seen deficiency of saliva during the early respiratory disease. If the person will have continutation of pathological event, there might be a probability of stimulation of sympathetic nervous system in the stomach and distal parts also. This may lead to the reduced secretion of gastric juice, which may lead to loss of appetite.

[25] In this type of Kasa, the cardinal feature is related to the character of the sputum. The person may have either colourless sputum or very negligible amount of sputum. The appearance of the cough is also variable. In other words, the associated features with this type of Kasa is unpredictable.

cardiac region and head

- Hoarseness of voice
- Dryness of the chest, throat and mouth
- Horripilation
- Darkness in front of the eyes
- Hoarseness of voice on continuous coughing
- Debility
- Confusion
- Dry cough with very little amount of sputum is produced which is coming out after several bouts of stressful coughing
- Symptoms of *Vataja Kasa* going to subside after consumption of unctuous, sweet, sour, salty and warm food and drinks.

### As per Sushruta and Madhavakara, the Lakshana of Vataja Kasa

- Pricking type of pain in chest, temples, head, abdomen and sides of the chest and abdomen
- Dryness of mouth
- Weak physical strength
- Hoarseness of voice
- *Oja Kshaya*
- Continuous coughing as if sputum is present inside the chest, but very little sputum comes out after several bouts of coughing
- Severe hoarseness of voice after several bouts of coughing

## Pittaja Kasa

**कटुकोष्णाविदाह्यम्लक्षाराणामति सेवनम्।**
**पित्तकासकरं क्रोधः संतापश्चाग्निसूर्यजः॥14॥**
**पीतनिष्ठीवनाक्षित्वं तिक्तास्यत्वं खरामयः।**
**उरोधूमायनं तृष्णा दाहो मोहोऽरुचिर्भ्रमः॥15॥**
**प्रततं कासमानश्च ज्योतींषीव च पश्यति।**
**श्लेष्माणं पित्तसंसृष्टं निष्ठीवति च पैत्तिके॥16॥** Ca.Ci. – 18/14-16
**उरोविदाहज्वरवक्त्रशोषरम्यर्दितस्तिक्तमुखस्तृषार्तः।**
**पित्तेन पीतानि वमेत्कटूनिकासेत्सपाण्डुः परिदह्यमानः॥8॥**
Su.Ut. – 52/8; Ma.Ni. – 11/6

- Excess consumption of pungent, sour taste substances
- Excess consumption of substances which are hot in potency such as chillies etc
- Excess consumption of substances which produce burning sensation in the chest and thirst
- Excess consumption of alkaline substances
- Anger
- Excess exposure to heat of fire
- Excess exposure to heat of sun

### Lakshana of Pittaja Kasa[26]

- Cough with yellowish discolouration of sputum
- Yellowish discolouration of the eyes
- Bitter taste in the mouth
- Hoarseness of voice
- Sensation of smoke coming out through chest
- Thirst
- Burning sensation
- Confusion
- Tastelessness
- Giddiness
- The person will have sensation of sparks in front of eyes after several bouts of coughing
- Sputum will be either mucoid or mucopurulent

### As per Sushruta and Madhavakara,

- Burning sensation of chest
- Raised body temperature
- Dryness of mouth
- Bitter taste in the mouth
- Thirst
- Vomiting with yellowish colour in the vomitus with pungent taste in the mouth
- Patient will have *Pandu* (anemia)

## Kaphaja Kasa

**गुर्वभिष्यन्दिमधुरस्निग्धस्वप्नाविचेष्टनैः।**
**वृद्धः श्लेष्माऽनिलं रुद्ध्वा कफकसं करोति हि॥17॥**
**मन्दाग्नित्वारु चिच्छर्दि पीन सोत्क्लेशगौरवैः।**
**लोमहर्षास्यमाधुर्यक्लेदसं सदनैर्युतम्॥18॥**
**बहुलं मधुरं स्निग्धं निष्ठीवति घनं कफम्।**
**कासमानो ह्यरुग् वक्षः संपूर्णमिव मन्यते॥19॥** Ca.Ci. – 18/17-19
**प्रलिप्यमानेन मुखेन सीदन् शिरोरुजातः कफपूर्णदेहः।**
**अभक्तरुग्गौरवसादयुक्तः कासेत ना सान्द्रकफं कफेन॥9॥**
Su.Ut. – 52/9; Ma.Ni. – 11/7

- Excess consumption of substances which are heavy to digest such as blackgram items or curds etc
- Excess consumption of substances which are *Abhishyandi* in nature which are responsible for increased secretion in the channels leading to obstruction in them
- Excess consumption of sweet substances

---

[26] In this type of Kasa, the character of the sputum plays a major role in the diagnosis as stated earlier in the context of Vataja Kasa. In case of infective respiratory conditions, the person may have either yellowish or greenish or pus mixed or reddish sputum.

- Excess consumption of unctuous substances
- Sleeping in day time in most of the times
- Physical inactivity

## Lakshana of Kaphaja Kasa[27]

- Loss of appetite
- Tastelessness
- Vomiting
- Running nose
- Nausea
- Heaviness of body parts
- Horripilation
- Sweetish taste in the mouth
- Reduced physical activity
- Nature of sputum is thick, unctuous, sweet taste in the sputum and in large amounts
- Painless coughing
- A person who hears the cough, it feels that the chest is full of sputum

### As per Sushruta and Madhavakara,

- Coating over the tongue
- Headache
- *Kapha* will be present all over the body
- Heaviness of the body parts
- Sluggish movements of the body parts
- Thick sputum and large amount of sputum is produced

## Kshataja Kasa

अतिव्यवायभाराध्ययुद्धाभ्यगजविग्रहैः।
रुक्षस्योरः क्षतं वायुर्ग्रहीत्वा कासमावहेत्॥20॥
स पूर्व कासते शुष्कं ततः ष्ठीवेत् सशोणितम्।
कण्ठेन रुजताऽत्यर्थ विरुग्णेनेव चोरसा॥21॥
सूचीभिरिव तीक्ष्णानिस्तुयमानेन शुलिना।
दुःखस्पर्शन शुलेन भेद्यीडाभितापिना॥22॥
पर्षभेदज्वरश्वासतुष्णावैखर्यपीडितः।
पारावत इवाकूजन् कासवेगात्क्षतोद्भवात्॥23॥

Ca.Ci. – 18/20-23; Ma.Ni. 11/8-11

वक्षोऽतिमात्रं विहतं तु यस्य व्यायामभाराध्ययनाभिघातैः।
विशिलष्टवक्षाः स नरः सरक्तं ष्ठीवत्यभीक्ष्णं क्षतजं तमाहुः॥10॥

Su.Ut. – 52/10

- Excess sexual intercourse
- Lifting heavy weights excessively
- Excess walk
- Fighting with physically strong people
- Falling from horse or elephant
- All above causes lead to the trauma to the chest, leads to the manifestation of cough

## Lakshana of Kshataja Kasa

- Initially the patient will have dry cough which will be followed by expectoration of cough mixed with blood or haemoptysis
- Patient will have severe pain in the chest and throat
- Pricking type of pain in the chest
- Tenderness in the chest
- Severe and intolerable pain
- Joint pain, fever, breathing discomfort, thirst, hoarseness of voice
- The voice resembles the sound of pigeon while breathing

### As per Sushruta,

- The chest gets injured due to excess exercise, lifting heavy weight, walking and trauma
- The person will have frank blood while coughing

## Kshayaja Kasa

विषमासात्म्यभोज्यातिव्यवायाद्वेगनिग्रहात्।
घृणिनां शोचतां नृणां व्यापन्नेऽग्नौ त्रयो मलाः॥24॥
कुपिताः क्षयजं कासं कुर्युर्देहक्षयप्रदम्।
दुर्गन्धं हरितं रक्तं ष्ठीवेत् पूयोपमं कफम्॥25॥
स्थानादुत्का समानश्च हृदयं मन्यते च्युतम्।
अकस्मादुष्णशीतार्तो बह्वाशी दुर्बलः कृशः॥26॥
स्निग्धाच्छमुखवर्णत्वम् श्रीमद्दर्शन लोचनः।
पाणिपादतलैः श्लक्ष्णैः सततासूयको घृणी॥27॥
ज्वरो मिश्राकृतिस्तस्य पार्श्वरुक् पीनसोऽरुचिः।
भिन्नसंहतवर्चस्त्वं स्वरभेदोऽनिमित्ततः॥28॥
इत्येष क्षयजः कासः क्षीणानां देहनाशनः।

Ca.Ci. – 18/24-29

शुष्यन् विनिष्ठीवति दुर्बलस्तु प्रक्षीणमांसो रुधिरं सपूयम्॥11॥
ससर्वलिङ्गं भृशदुश्चिकित्स्यं चिकित्सितज्ञाः क्षयजं वदन्ति।

Su.Ut. – 52/11,12

विषमासात्म्यभोज्यातिव्यवायाद्वेगनिग्रहात्।
घृणिनां शोचतां नृणां व्यापन्नेऽग्नौ त्रयो मलाः।
कुपिताः क्षयजं कासं कुर्युर्देहक्षयप्रदम्॥12॥
स गात्रशूलज्वरदाहमोहान् प्राणक्षयं चोपलभेत कासी।
शुष्यन्विनिष्ठीवति दुर्बलस्तु प्रक्षीणमांसो रुधिरं सपूयम्।
तं सर्वलिङ्गं भृशदुश्चिकित्स्यं चिकित्सितज्ञाः क्षयजं वदन्ति॥13॥

Ma.Ni. – 11/12,13

---

[27] As stated in the context of Vataja and Pittaja Kasa, the characteristic features of sputum determine the Kaphaja Kasa too. In case of chronic respiratory diseases either obstructive or restrictive disease conditions, the person may have this type of sputum which may be either sticky or white or large amount of sputum.

- Consumption of food substances at improper time and quantity
- Excess consumption of unwholesome food
- Excess sexual intercourse
- Frequent suppression of natural urges
- The people who are having aversion towards any substance/ thing
- The person who is having grief continuously
- The above said causes lead to the vitiation of three *Dosha* and leading to the manifestation of *Kshayaja Kasa.*

## Lakshana of Kshayaja Kasa

- The patient will have profound weight loss and deterioration of general health
- The patient will have foul smelling, greenish or reddish or pus mixed sputum
- When the person gets cough, he will have the feeling of displacement of heart from its site
- Frequent abnormal sensations of warmth and cold from the patient
- Debility
- Emaciation
- Unctuous, clear oral cavity and skin
- *Shirmat Darshana Lochana*
- Sliminess of palms and soles
- *Satata Asuyako Ghrini*
- Fever
- Pain in the sides of chest
- Running nose
- Tastelessness
- Unformed stools
- Hoarseness of voice

### As per Madhavakara

- Pricking type of pain all over the body
- Fever
- Burning sensation
- Confusion
- Life threatening
- Initially dry cough followed by haemoptysis or pus mixed sputum
- Debility
- Extreme muscle atrophy
- All symptoms observed in a single patient and it is very difficult to treat.

## Sadhyasadhyata of Kasa

इत्येष क्षयजः कासः क्षीणानां देहनाशनः।
साध्यो बलवतां वा स्याद्याप्यस्त्वेव क्षतोत्थितः॥14॥
नवौ कदाचित्सिध्येतामपि पादगुणान्वितौ।
त्रीन् पूर्वान्साधयेत्साध्यान्पथ्यैर्याप्यांस्तु यापयेत्॥15॥
Ma.Ni. – 11/14,15

- *Kshayaja Kasa*[28] in a physically weak individual is *Asadhya* (incurable)
- *Kshataja Kasa*[29] in a strong individual is *Yapya* (manageable)
- If the *Kasa* is of recent origin and if *Chikitsa Chatushpada* is adequately present, then such disease is *Krichrasadhya* (treatable with difficulty)[30]
- In elderly people, *Kasa* is developed in old age, the *Kasa* is *Yapya* (manageable)[31]
- *Vataja, Pittaja* and *Kaphaja Kasa* is treatable if proper measures and *Pathya* are followed.[32]

## Differential diagnosis of Kasa based on Kapha (character of sputum) Lakshana Chapter resources

| Character of Sputum | Vataja Kasa | Pittaja Kasa | Kaphaja Kasa |
|---|---|---|---|
| Amount | Very negligible to little | Moderate amount | Large amount |

---

G K

[28] When compared to other types of Kasa, Kshayaja Kasa is usually of longer duration and it afflicts usually physically weak individuals. In this situation, the person will have extreme Dhatu Kshaya in the body. That may be the reason, it may take much longer time to have complete recovery.

[29] One of the major clinical presentation of Kshataja Kasa is the presence of blood in the sputum during coughing. First of all, the clinician has to ensure the exact site of bleeding either nose or nasopharynx or oropharynx or oral cavity such as teeth or larynx or lower respiratory passages. The exact site of the bleeding can be identified by proper case history and adequate physical examination. If the person is not having any major disease manifestation, then Kshataja Kasa can be manageable.

[30] In Ayurveda, it is being said that if a person is suffering from Kasa, the ideal Aushadha Sevana Kala (time of administration of medicine is Muhurmuhu (frequent administration of medicine). If we make the accurate analysis of degree of Dosha vitiation, actual physical strength of the patient, plent of medicines are avalilable and the person is listening to the advices of the clinician, such type of Kasa is treatable.

[31] One of the major events taking place in elderly patients having Kasa is Dhatu Kshaya (depletion of body tissue elements). Another major reason could be the elderly patients may have the association of other disease conditions also such as congestive cardiac failure or interstitial lung disease or chronic obstructive pulmonary disease. That is why, the Kasa appearing in elderly individuals is manageable with difficulty.

[32] When compared to all types of Kasa mentioned in Ayurveda textbooks, these types of Kasa are having short duration when in disease manifestation from the time of contact of aetiological factor to the body when compared to Kshataja and Kshayaja Kasa. That may be the reason, Doshaja varieties of Kasa are easily treatable.

| Character of Sputum | Vataja Kasa | Pittaja Kasa | Kaphaja Kasa |
|---|---|---|---|
| Colour | Colourless | Yellowish, greenish, reddish | Whitish |
| Duration of the illness | Very short | Chronic | Chronic |

## Differential diagnosis of Kshayaja Kasa and Rajayakshma

| Basis | Kshayaja Kasa | Rajayakshma |
|---|---|---|
| Based on causes | Multiple causative factors are mentioned | In this, 4 types of Nidana exposure are mentioned: Sahasajanya, Vishamashanajanya, Sandharanajanya, Kshayajanya |
| Nature of Lakshana | Restricted to Pranavaha Srotas | Not restricted to Pranavaha Srotas; widespread to all Srotas |
| Dushya affliction | Rasa, Rakta are primarily involved | All seven Dhatu are afflicted during the pathogenesis |
| Appearance of associated features | Bhinna Varchas (unformed stools), Svarabheda (hoarseness of voice) manifested in the individual, the cause is untraceable | The cause for the Lakshana manifested in the individual can be traceable. |

## Differential diagnosis of Kshataja Kasa and Kshata Kshina

| Basis | Kshataja Kasa | Kshata Kshina |
|---|---|---|
| Duration of the illness | Acute | Chronic |
| Lakshana | First, there will be Shushka (dry) Kasa followed by the cough with blood | In this disease, the person will have the presence of blood along with sputum |
| Prognosis | Comparatively better when compared to Kshata Kshina | Comparatively poorer when compared to Kshataja Kasa |

## Key summary of the chapter

- **कसनात्कास उच्यते** Ca.Ci. – 18/8 is the Pratyatma Lakshana of Kasa observed during the manifestation of the disease.
- This disease is characterised by the production of specific type of sound i.e. sound produced by tapping the broken bronze vessel. This is facilitated by the combined action of Prana and Udana Vata.
- The disease afflicts Pranavaha Srotas. This is characterised by explosive expiration where in the irritating contents present in the Pranavaha Srotas is being eliminated through mouth. Depending upon the dominance of Dosha during the progression of the disease, we can observe the vitiation of Vata or Kapha. Udbhava Sthan of Kasa is Amashaya and Sanga and Vimargagamana is the nature of Srotodushti is seen in this disease.
- Pranavata and Udanavata are the main types of Vata Dosha responsible for the manifestation and progression of the disease. Depending upon the association of other types of Dosha, the person may have the appearance of yellowish discolouration of sputum in case of Pittaja Kasa and whitish discolouration of sputum in case of Kaphaja Kasa.

**पूर्वरूपं भवेत्तेषां शुकपूर्णगलास्यता।**
**कण्ठे कण्डूश्च भोज्यानामवरोधश्च जायते॥5॥** Ca.Ci. – 18/5

- The sensation of pricking type with thorns in the throat and oral cavity, irritation in the throat and sensation of obstruction of food in the throat region are some of the Purvarupa (premonitory symptoms) seen in Kasa disease.
- Sankhya Samprapti of Kasa is 5 types. Vataja, Pittaja, Kaphaja, Kshataja and Kshayaja Kasa.
- As far as Sadhyasadhyata (prognosis) of the disease is concerned, Doshaja type of Kasa (Vataja, Pittaja and Kaphaja) are treatable if the person follows adequate diet and regimen. Kshataja Kasa is considered as Yapya (manageable), the clinician should identify the exact cause of Kshataja Kasa. Kshayaja Kasa is considered as Asadhya (incurable), particularly if the person is having extreme Dhatu Kshaya.

## Probable questions asked in the university examination

### Long essays

- Define Kasa. Explain Nidana, Samprapti, Purvarupa, Pratyatma Lakshana, Bheda and Sadhyasadhyata of Kasa

- Explain the Nidana Panchaka of Kasa

## Short essays

- Explain Kshataja Kasa
- Describe Kshayaja Kasa
- Explain Kaphaja Kasa
- Explain the types of Kasa
- Explain Samprapti and Samprapti Ghataka of Kasa
- Describe Sadhyasadhyata of Kasa

## MCQs

1. **Sankhya Samprapti of Kasa is**
   a. 3 types; b. 4 types;
   c. 5 types; d. 7 types

*Answer*: (c)

2. **Which of the following type of Vata involved in the Samprapti of Kasa?**
   a. Pranavata; b. Samanavata;
   c. Apanavata; d. Vyanavata

*Answer*: (a)

3. **Which of the following type/s of Vata involved in the Samprapti of Kasa?**
   a. Pranavata;
   b. Udanavata;
   c. Both a and b;
   d. None of the above

*Answer*: (c)

4. **'Paravata Iva Kujan' is the term specifically seen in which type of Kasa?**
   a. Kshayaja Kasa;
   b. Kshataja Kasa;
   c. Pittaja Kasa;
   d. Vataja Kasa

*Answer*: (b)

5. **Which of the following type of Kasa is considered as Asadhya in nature?**
   a. Vataja Kasa;
   b. Pittaja Kasa;
   c. Kaphaja Kasa;
   d. Kshayaja Kasa

*Answer*: (d)

6. **Shukapurna Galasyata is ..............of Kasa.**
   a. Nidana; b. Purvarpa;
   c. Rupa; d. Upadrava

*Answer*: (b)

7. **Jyotishamiva Darshana is the Lakshana observed in**
   a. Vataja Kasa; b. Pittaja Kasa;
   c. Kaphaja Kasa; d. Kshayaja Kasa

*Answer*: (b)

8. **Uro Dhumayana is the Lakshana observed in**
   a. Pittaja Kasa;
   b. Purvarupa of Chardi;
   c. Amlapitta;
   d. Annaja Hikka

*Answer*: (a)

9. **Kantha Kandu is the Purvarupa of which of the following?**
   a. Kasa; b. Shvasa;
   c. Hikka; d. Galaganda

*Answer*: (a)

10. **Kshataja Kasa is**
    a. Sukhasadhya; b. Krichrasadhya;
    c. Yapya; d. Pratyakhyeya

*Answer*: (c)

## Chapter resources

- https://pharmaceutical-journal.com/article/ld/case-based-learning-cough
- Charaka Samhita, Chikitsa Sthana 18th chapter – Kasa Chikitsa Adhyaya
- Sushruta Samhita Uttara Tantra 52nd chapter – Kasa Pratishedha Adhyaya
- Sushruta Samhita Uttara Tantra 50th chapter – Hikka Pratishedha Adhyaya
- Madhava Nidana 11th chapter – Kasa Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

15

Accelerated heartbeat (tachycardia)

# Rajayakshma and Shosha

**Learning Objectives**

- ⇨ To learn the concept of Rajayakshma
- ⇨ To learn the Nidana of Rajayakshma mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To describe Vyadhi Svabhava (cardinal feature) of Rajayakshma
- ⇨ To know about the types of Rajayakshma
- ⇨ To learn about the features of Tri, Shad and Ekadasharupi Rajayakshma
- ⇨ To learn about Sadhyasadhyata of Rajayakshma
- ⇨ To classify and describe Shosha

## Introduction

*Rajayakshma*[1] is the spectrum of diseases where one can observe extreme emaciation of the body of the patient, depletion of all body tissues. It usually involves *Pranavaha Srotas*, This is mainly caused due to the vitiation of all three *Dosha*. As per *Charaka*, *Rajayakshma* is considered to be one among the *Rogasamuha* (a group of diseases). This is also called as *Shosha* (disease where dryness of all tissues take place), *Kshaya* (disease where depletion of body tissues), *Rogarat* (king of all diseases).

**अनेकरोगानुगतो बहुरोगपुरोगमः।**
**राजयक्ष्मा क्षय शोषो रोगराडिति च स्मृतः॥1॥** A.Hr.Ni. – 5/1

*Rajayakshma* is considered to be associated with multiple diseases which occur prior to the manifestation of *Rajayakshma* and multiple diseases will follow *Rajayakshma*. That is the reason, *Rajayakshma* is considered to be the king of the diseases or one of the major diseases.

**नक्षत्राणा द्विजाना च राशोऽभूद्यदयं पुरा।**
**यच्च राजा च यक्ष्मा च राजयक्ष्मा ततो मत॥2॥**
**देहौषधक्षयकृतेः क्षयस्तत्सम्भवाच्च स.।**

---

GK

[1] The main pathogenesis in this disease is depletion of all body tissues from the body. In other words, the patient needs much more time to get recovery from the illness, as the treatment of the patient is taking much longer time as there is sufficient nutrient loss is already present in the patient and duration of the illness is prolonged.

- Hampered functions of all types of Agni – Jatharagni, Dhatvagni and Bhutagni
- All the three Doosha affliction can be observed.
- All the seven Dhatu affliction can be seen.
- All the three Rogamarga affliction can be seen.
- Lakshana observed in the patient implies affliction of the multiple organs in the body.
- The treatment as per Ayurveda fundamentals, is facilitating the movement of Dosha from the Shakha or Madhyama Rogamarga to the Koshtha. This is difficult as the Rogibala in this patient will be already weaker and extreme Dhatu Kshaya is seen in the patient.

As per Ayurveda, human body has nine natural orifices in males and in females, twelve natural orifices are seen. Due to the exposure of the aetiological factor, each of these orifices are susceptible to the entry of the pathogen into the body leading to multiple disease manifestations. Rajayakshma is said to be manifested in the individuals due to Sahasa (excess exercise), Vishamashana (abnormal diet pattern), Vega Sandharana (suppression of the natural urges) and Kshaya (excess sexual intercourse). In case of extreme Sahasa (exercise), the first and foremost orifice affliction can be observed is nose and oral cavity i.e. respiratory system and alimentary canal affliction can be observed in due course of time. In case of Vishamashana, primarily affliction of alimentary canal will be seen. In case of Vega Sandharana, primarily affliction of lower alimentary canal can be seen. In case of Kshaya, Shukra Kshaya in particular, primary affliction of reproductive and urinary system can be observed. Thus, we have to analyse each type of Nidana exposure in the manifestation of Rajayakshma.

रसादिशोषणाच्छोषो रोगराट् तेषु राजनात्॥3॥ A.Hr.Ni. – 5/2-3

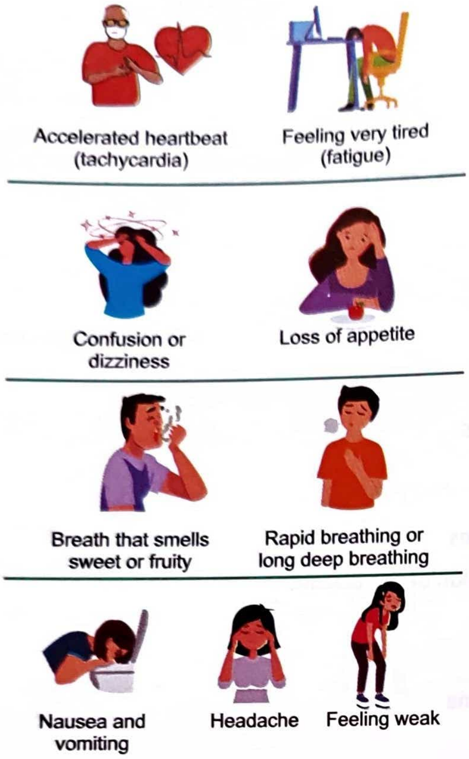

Accelerated heartbeat (tachycardia)
Feeling very tired (fatigue)
Confusion or dizziness
Loss of appetite
Breath that smells sweet or fruity
Rapid breathing or long deep breathing
Nausea and vomiting
Headache
Feeling weak

**Figure 29:** Lakshana of Rajayakshma

- The disease afflicted the king of stars, Chandra (moon) and it is considered as king of diseases and it is having large number of the symptoms, it is called *Rajayakshma*.
- The disease leads to loss or depletion of body tissues, this is called as *Kshaya*.
- As all *Dhatu* undergo depletion from *Rasa* to *Shukra Dhatu*, this is also called as *Kshaya*.

## Nidana[2] of Rajayakshma

इह खलु चत्वारि शोषस्यायतनानि भवन्ति; तद्यथा - साहसं संधारणं क्षयो विषमाशनमिति॥3॥ Ca.Ni. – 6/3

अयथाबलमारम्भं वेगसंधारणं क्षयम्।
यक्ष्मणः कारणं विद्याच्चतुर्थं विषमाशनम्॥ Ca.Ci. – 8/13

As far as *Rajayakshma* is concerned, the disease is classified into 4 based on the *Nidana* or *Ayatana* or causative factors are concerned.

1. *Sahasajanya*[3] (over exertion)
2. *Vegasandharanajanya*[4] (suppression of the urges)
3. *Kshayajanya*[5] (depletion of the body tissues)
4. *Vishamashanajanya*[6] (improper diet induced)

**G K**

[2] When all the Nidana mentioned in Rajayakshma are analysed, we are going to observe the sequential depletion of carbohydrates, fats, proteins, water and micronutrients such as minerals, vitamins etc. Depending upon the degree of the depletion of body tissues, the patient will develop the clinical manifestation of symptoms. If the person is having such a depletion of body tissues, then he is not in a position to produce the cells including RBC, WBC, platelets etc. The person is more susceptible for any kind of opportunistic infections. These opportunistic infections can occur because of the entry of organisms through any of the natural orifices.

[3] When a person indulges over exertion and he is not consuming adequate amount of nutrition, he will likely to have sequential decrease of macronutrients such as carbohydrates, fats, proteins and water; micronutrients such as minerals and vitamins. As there is reduced nutrient supply, new cells are not formed; including deficiency in formation of RBCs, WBCs and platelets. Thus, the person is exposed to multiple opportunistic infections.

[4] The term Vegasandharana refers to suppression of natural urges which should not be suppressed. Let us take few examples as description of all these urges is a huge task and makes this book a gigantic one.

Let us take the example of Purisha Vega Dharana (suppression of urge of defaecation). When the person suppresses the urge of defaecation, that will lead to the more solidification of stool by absorption of 75% of water present in the stool usually. Further, this will lead to stasis of faecal matter for much longer time. This will become a source of bacterial infection to proliferate in the colon.

Let us take the examples of Kasa (cough), Shvasa (breathlessness due to exertion) due to and Kshavathu (sneezing). All these natural urges are leading to the compromise in the respiratory function. Cough is a protective mechanism which expels the allergens from the upper and lower respiratory passages to the exterior. Breathlessness due to exertion will be responsible for breathing through open mouth which may lead to the entry of the multiple pathogens into the respiratory airways leading to the disease manifestation. Kshavathu or sneezing is observed at the beginning of entry of allergens into the upper respiratory passages. If this urge is suppressed, allergens or pathogens will enter into the lower respiratory airways leading to the manifestation of disease in the lower respiratory passages.

[5] In this cause, the person may already have the depletion of the body tissues; it implies he will have deficiency of macronutrients such as water, carbohydrates, fats and proteins and micronutrients such as minerals and vitamins. Depending upon the nature of depletion of body tissues, the person may show clinical symptoms.

[6] The term Vishamashana refers to abnormal intake of food in terms of quantity and timing. In terms of quantity, sometimes the person will take too much amount of food and in some occasions, he will take too little amount of food. In terms of timing, the person will take the food too early and sometimes he will take the food too late after several hours getting the appetite. Here, the condition is the person is not following a particular ritual or he is not disciplined in terms of consumption of food. If the person is indulging in Vishamashana for longer duration, then only the person may get afflicted with Rajayakshma.

If the person is consuming the food too early, it shows the pathological effects similar to Adhyashana (consumption of food prior to digestion of previously ingested meal). Refer the context of Agnimandya. If the person is consuming the food too late, the nutrient supply becomes delayed because the person is having nutrient loss happened already in the body. In other words to say, the person is having glucose depletion in the beginning. As the person consumes the food after several hours of appearance of appetite, that will lead to the depletion of fats, proteins, water and deficiency of minerals and vitamins. If the person is consuming too little amount of food, then the same mechanism of consumption of food too late can be observed in the patients.

## Samprapti of Rajayakshma

रसः स्रोतःसु रुद्धेषु स्वस्थानस्थो विद्यते।
स ऊर्ध्वं कासवेगेन बहुरूपः प्रवर्तते॥43॥ Ca.Ci. – 8/43
कफप्रधानदपैस्तु रुद्धेषु रसवर्त्मसु।
अतिव्यवायिनो वाऽपि क्षीणे रेतस्यनन्तराः।
क्षीयन्ते धातवः सर्वे ततः शुष्यति मानवः॥2॥ Ma.Ni. – 10/2

- *Trido*``**Samprapti Ghtaka**
- **Dosha :** *Kapha* dominant *Tridosha*
- **Dushya :** All seven *Dhatu*
- **Srotas :** *Pranavaha* and *Rasavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya* and *Saptadhatvagnimandya*
- **Ama :** *Jatharagnimandyajanya* and *Saptadhatvagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Uras*
- **Rogamarga :** *Abhyantara, Bahya* and *Madhyama*
- **Vyadhyavastha :** *Ashukari*
- **Sadhyasadhyata :** *Asadhya*

## Purvarupa of Rajayakshma

तस्येमानि पूर्वरूपाणि भवन्ति; तद्यथा- प्रतिश्यायः, क्षवथुरभीक्ष्णं, श्लेष्मप्रसेकः, मुखमाधुर्यम्, अनन्नाभिलाषः, अन्नकाले चायासः, दोषदर्शनमदोषेष्वल्पदोषेषु वा भावेषु पात्रोदकान्नसूपापूपोपदंशपरिवेशकेषु, भुक्तवतश्चास्य हृल्लासः, तथोल्लेखनमप्याहारस्यान्तरान्तरा, मुखस्य पादयोश्च शोफः पाण्योश्चावेक्षणमत्यर्थम्, अक्ष्णोः श्वेतावभासता चातिमात्रं, बाह्वोश्च प्रमाणजिज्ञासा, स्त्रीकामता, निर्घृणित्वं, बीभत्सदर्शनता चास्य काये, स्वप्ने चाभीक्ष्णं दर्शनमनुदकानामुदकस्थानानां शून्यानां च ग्रामनगरनिगमजनपदानां शुष्कदग्धभग्नानां च वनानां कृकलासमयूरवानरशुकसर्पकाकोलूकादिभिः संस्पर्शनमधिरोहणं यानं वा श्वोष्ट्रखरवराहैः केशास्थिभस्मतुषाङ्गारराशीनां चाधिरोहणमिति ( शोषपूर्वरूपाणि भवन्ति )॥13॥ Ca.Ni. – 6/13

- Running nose[7]
- Frequent sneezing
- Excess mucus mixed salivation[8]
- Sweetish taste in the mouth
- Lack of desire to take food
- Exhaustion during the time of consumption of food
- Finding fault in any of the food or food preparations even though the fault is mild
- Nausea
- Frequent vomiting[9]
- Swelling in the oral cavity and both feet[10]
- Frequently seeing one's hands[11]

---

GK

[7] In this situation, the route of entry may be considered as nose, nasal cavity. This type of Lakshana can be seen in the patients who has extreme Sahasa (debilitating strenuous exercise). In this case, the patient may have breathing through open mouth. In other words to say, in this situation the entry of the pathogen may occur either through nose or oral cavity which in turn may lead to the manifestation of the symptoms running nose, frequent sneezing. Due to the running nose, there may be a possibility of blockage of nose due to the presence of crust in the nasal cavity. Due to this, the person starts breathing through open mouth which in turn may lead to lack of appetite.
All these mechanisms are slow processes in the emaciated individuals.

[8] Extreme mucus is produced when there is excess parasympathetic nervous system stimulation. Whenever entry of pathogen occurs in the body, that will lead to the secretions to occur in the system of entry of pathogen. This will lead to excess salivary secretion if the entry of the pathogen is from oral cavity.

[9] This type of prodromal symptoms can be seen in case of entry of the pathogens into the alimentary canal. In other words, Rajayakshma due to Sahasa, Vishamashana may develop these kinds of symptoms. For Sahasa, we have discussed above in the context of Purvarupa, refer the context for the meaning. In case of Vishamashana, the person will have abnormal pattern of food intake in terms of quantity of food intake and timing of the food intake. If the person is not having a routine in terms of food intake, following mechanisms may develop in the individuals.
- Lack of secretion of salivary glands leading to dryness of the mouth, as there is lack of functioning of the taste bud, poor taste perception from the individual may occur
- Lack of secretion of gastric juice, inefficient secretion of pepsinogen, inactive form of pepsinogen secretion, poor hydrochloric acid (pH between 1.8 to 3.5 normally, in case of poor gastric juice, pH) may be observed. All these factors may hamper the process of ingestion, storage digestion and assimilation in the alimentary canal.

[10] In this, there are two terminologies – swelling in oral cavity and both feet.
- Swelling in the oral cavity: When the person is having poor dental hygiene that may be responsible for the deposition of tartar around the teeth, gums and oral cavity. This may lead to the proliferation of bacteria in and around the teeth, which may in turn damage the buccal mucosa (stomatitis) or teeth (dental caries). This may lead to the inflammation of oral cavity, teeth, gums, tongue or tonsils. This can be the probable explanation for swelling in the oral cavity.
- Bilateral pedal oedema: When one observes bilateral pedal oedema, indicates circulatory failure where in cardiac dysfunction can be observed. One of the pathological mechanism i.e. hypoproteinemia may be one of the cause of bilateral pedal oedema. This indicates nutritional deficiency in the diseased individual.
- When there is deficiency in the proteins and electrolytes will lead to the decrease in oncotic pressure which leads to the movement of fluid from the capillaries into the interstitial compartment. This could be the main reason for the appearance of bilateral pedal oedema.

[11] This premonintory symptom cannot be explained with current understanding.

- Whitish discolouration of the eyes[12]
- Excess libido[13]
- Aversion towards everything[14]
- Frequent seeing the waterless rivers, empty cities, forest fire etc in dreams
- In dreams, he feels as if he is carried by peacock, vulture, monkey, chameleon etc[15].

## Sahasajanya Rajayakshma

तत्र साहसं शोषस्यायतनमिति यदुक्तं तदनुव्याख्यास्यामः- यदा पुरुषो दुर्बलो हि सन् बलवता सह विगृह्णाति, अतिमहता वा धनुषा व्यायच्छति, जल्पति वाऽप्यतिमात्रम्, अतिमात्रं वा भारमुद्वहति, अप्सु वा प्लवते चातिदूरम्, उत्सादनपदाघातने वाऽतिप्रगाढमासेवते, अतिप्रकृष्टं वाऽध्वानं द्रुतमभिपतति, अभिहन्यते वा, अन्यद्वा किञ्चिदेवंविधं विषममतिमात्रं वा व्यायामजातमारभते, तस्यातिमात्रेण कर्मणोरः क्षण्यते।

तस्योरः क्षतमुपप्लवते वायुः।

स तत्रावस्थितः श्लेष्माणमुरः स्थमुपसङ्गृह्य पित्तं च दूषयन् विहरत्यूर्ध्वमधस्तिर्यक् च।

तस्य योंऽशः शरीरसन्धीनाविशति तेनास्य जृम्भाऽङ्गमर्दो ज्वरश्चोपजायते, यस्त्वामाशयमभ्युपैति तेन रोगा भवन्ति उरस्या अरोचकश्च, यः कण्ठमभिप्रपद्यते कण्ठस्तेनोद्ध्वंस्यते स्वरश्चावसीदति, यः प्राणवहानि स्रोतांस्यन्वेति तेन श्वासः प्रतिश्यायश्च जायते, यः शिरस्यवतिष्ठते शिरस्तेनोपहन्यते; ततः क्षणनाच्चैवोरसो विषमगतित्वाच्च वायोः कण्ठस्य चोद्ध्वंसनात् कासः सततमस्य सञ्जायते, स कासप्रसङ्गादुरसि क्षते शोणितंष्ठीवति, शोणितागमनाच्चास्य दौर्बल्यमुपजायते; एवमेते साहसप्रभवाः साहसिकमुपद्रवाः स्पृशन्ति।

ततः स उपशोषणैरेतैरुपद्रवैरुपद्रुतः शनैः शनैरुपशुष्यति।

तस्मात् पुरुषो मतिमान् बलमात्मनः समीक्ष्य तदनुरूपाणि कर्माण्यारभेत कर्तुं; बलसमाधानं हि शरीरं, शरीरमूलश्च पुरुष इति॥4॥

भवति चात्र-

साहसं वर्जयेत् कर्म रक्षञ्जीवितमात्मनः।
जीवन् हि पुरुषस्त्विष्टं कर्मणः फलमश्नुते॥5॥

Ca.Ni. – 6/4,5

- When a weak person gets confrontation with a physically strong person or when a person excessively indulges in exercise or speaks too much or carries overweight or swims for a long distance in water or forceful anointing and kneading with feet etc.
- Excess walking or trauma to the body or abnormal and excess exercise.
- The above said measures lead to trauma to the chest and vitiation of *Vata* in the chest.
- This vitiated *Vata Dosha* will lead to the vitiation of *Kapha* and *Pitta Dosha* in the chest and these vitiated *Dosha* will move in upward, downward and oblique directions.
- When the vitiated *Dosha* enter the joints, then the person will presents with yawning, bodyache and fever.
- When the vitiated *Dosha* enter the *Amashaya* (stomach), then the individual may suffer from the diseases of *Uras* (chest) and tastelessness.
- When the vitiated *Dosha* enter the throat, then the person presents with affliction of throat and hoarseness of voice.
- When the vitiated *Dosha* enter the *Pranavaha Srotas*, then the person presents with breathing discomfort and running nose.
- When the vitiated *Dosha* enter the *Shiras* (head), then the person presents with diseases of the head.

---

GK

[12] Whitish discolouration of the eyes may refer to pallor. The decrease of haemoglobin in the RBC is the one responsible for the pallor. This is indicative of protein deficiency.
- In the patient suffering from Rajayakshma as discussed in the context of Rajayakshma all the essential factors such as macronutrients (carbohydrate, fat and protein) and micronutrients (vitamins such as vitamin A, vitamin B complex and vitamin C, minerals such as sodium, potassium) deficiency.
- Pallor may be observed as there is decrease in the formation of haemoglobin itself where in alimentary canal is unable to absorb iron, protein, vitamin C, vitamin B12 may be observed.

[13] Excess libido could be specifically observed in case of Kshayajanya variety of Rajayakshma. If an individual is frequently performing sexual intercourse, that individual will have an urge of performing sexual intercourse frequently.

[14] This symptom may indicate poor absorption in the alimentary canal. This may lead to the poor peristaltic movement too leading to heaviness of the abdomen.
- To know this word, we have to understand the concept of formation of Ama in the alimentary canal and its movement in the intravascular, interstitial and intracellular compartments.
- When an individual is having the poor absorption in the stomach due to poor digestive fire (pH of gastric juice >3.5) will be leading to hampered conversion of macromolecules into intermediate and micromolecules.
- As human beings consume more amount of carbohydrate rich diet, that will lead to the proliferation of pathogenic organsims in the stomach which damage the gastric mucosa.
- Because of the damage to the gastric mucosa, macromolecules or intermediate molecules will enter into interstitial compartment of stomach which will enter the intravascular compartment through lymphatic system. Thus, these molecules will be responsible for the poorer movement even in the intravascular, interstitial and intracellular compartments.
- When there is poor movement in the body due to the macromolecules or intermediate molecules in the interstitial and intracellular compartments, the person may have the presenting complaint of lethargy. This may be the reason for aversion to do every activity by the ailing individual.

[15] No probable explanation can be possible to this prodromal symptom explained in Rajayakshma.

- When injury occurs to the chest because of abnormal vitiation of *Vata Dosha* and affliction of throat, the person will gets continuous coughing, the sequel of this coughing is haemoptysis. The sequel of haemoptysis is debility.
- Thus, the person will get complications gradually due to the progressive worsening of pathology in due course of time.
- That is the reason, one should not do *Sahasa* (excess effort to do any activities more than one's capacities)

## Sandharanajanya Rajayakshma

सन्धारणं शोषस्यायतनमिति यदुक्तं तदनुव्याख्यास्यामः- यदा पुरुषो राजसमीपे भर्तुः समीपे वा गुरोर्वा पादमूले द्यूतसभमन्यं वा सतां समाजं स्त्रीमध्यं वा समनुप्रविश्य यानैर्वाऽप्युच्चावचैरभियान् भयात् प्रसङ्गाद्धीमत्त्वाद्घृणित्वाद्वा निरुणद्ध्यागतान् वातमूत्र-पुरीषवेगान् तदा तस्य सन्धारणाद्वायुः प्रकोपमापद्यते, स प्रकुपितः पित्तश्लेष्माणौ समुदीर्योर्ध्वमधस्तिर्यक् च विहरति; ततश्चांशविशेषेण पूर्ववच्छरीरावयवविशेषं प्रविश्य शूलमुपजनयति, भिनत्ति पुरीषमुच्छोषयति वा, पार्श्वे चातिरुजति, अंसाववमृद्नाति, कण्ठमुरश्चावधमति, शिरश्चोपहन्ति, कासं श्वासं ज्वरं स्वरभेदं प्रतिश्यायं चोपजनयति; ततः स उपशोषणैरेतैरुपद्रवैरुपद्रुतः शनैः शनैरुपशुष्यति।

तस्मात् पुरुषो मतिमानात्मनः शारीरेष्वेव योगक्षेमकरेषु प्रयतेत विशेषेण; शरीरं ह्यस्य मूलं, शरीरमूलश्च पुरुषो भवति॥6॥

भवति चात्र- सर्वमन्यत् परित्यज्य शरीरमनुपालयेत्।

तदभावे हि भावानां सर्वाभावः शरीरिणाम्॥7॥ Ca.Ni. – 6/6,7

- When the person suppresses the natural urges of flatus, urine, faecal matter and so on, for example, when an individual is with duties with king or in front of teachers or while playing gambling or in the midst of women (in other words in the middle of opposite sex people) or in the middle of group of people or during travel or due to fear or due to blashfullness or due to disgust
- The above said factors will vitiate *Vata Dosha* and this vitiated *Vata* afflicts the *Pitta* and *Kapha Dosha* and which in turn move in upward, downward and oblique directions.
- When the vitiated *Dosha* enter the different body parts, will lead to the manifestation of pain, formation of unformed stools or constipation, pain in the sides of the chest or pain in the shoulder or sore throat or chest discomfort, headache, cough, breathing discomfort, fever, hoarseness of voice, running nose.
- Complications occur gradually to the body because of gradual depletion of body tissues.
- Therefore, one should maintain proper health of the self.

## Kshayajanya Shosha

क्षयः शोषस्यायतनमिति यदुक्तं तदनुव्याख्यास्यामः- यदा पुरुषोऽतिमात्रं शोकचिन्तापरिगतहृदयो भवति, ईर्ष्योत्कण्ठाभयक्रोधादिभिर्वा समाविश्यते, कृशो वा सन् रूक्षान्नपानसेवी भवति, दुर्बल प्रकृतिरनाहारोऽल्पाहारो वा भवति, तदा तस्य हृदयस्थायी रसः क्षयमुपैति; स तस्योपक्षयाच्छोषं प्राप्नोति, अप्रतीकाराच्चानुबध्यते यक्ष्मणा यथोपदेक्ष्यमाणरूपेण।8।

यदा वा पुरुषोऽतिहर्षादतिप्रसक्तभावः स्त्रीष्वतिप्रसङ्ग-मारभते, तस्यातिमात्रप्रसङ्गाद्रेतः क्षयमेति।

क्षयमपि चोपगच्छति रेतसि यदि मनः स्त्रीभ्यो नैवास्य निवर्तते, तस्य चातिप्रणीतसङ्कल्पस्य मैथुनमापद्यमानस्य न शुक्रं प्रवर्ततेऽतिमात्रोपक्षीणरेतस्त्वात्, तथाऽस्य वायुर्व्यायच्छमानशरीरस्यैव धमनीरनुप्रविश्य शोणित-वाहिनीस्ताभ्यः शोणितं प्रच्यावयति, तच्छुक्रक्षयादस्य पुनः शुक्रमार्गेण शोणितं प्रवर्तते वातानुसृतलिङ्गम्। अथास्य शुक्रक्षयाच्छोणितप्रवर्तनाच्च सन्धयः शिथिलीभवन्ति, रौक्ष्यमुपजायते, भूयः शरीरं दौर्बल्यमाविशति, वायुः प्रकोपमापद्यते; स प्रकुपितो वशिकं शरीरमनुसर्पन्नुदीर्य श्लेष्मपित्ते परिशोषयति मांसशोणिते, प्रच्यावयति श्लेष्मपित्ते संरुजति पार्श्वे, अवमृद्नात्यंसौ, कण्ठमुद्ध्वंसति, शिरः श्लेष्माणमुपत्क्लेश्य प्रतिपूरयति श्लेष्मणा, सन्धींश्च प्रपीडयन् करोत्यङ्गमर्दमरोचकाविपाकौ च, पित्तश्लेष्मोत्क्लेशात् प्रतिलोमगत्वाच्च वायुर्ज्वरं कासं श्वासं स्वरभेदं प्रतिश्यायं चोपजनयति; स कासप्रसङ्गादुरसि क्षते शोणितंष्ठीवति, शोणितगमनाच्चास्य दौर्बल्यमुपजायते, ततः स उपशोषणैरेतैरुपद्रवैरुपद्रुतः शनैः शनैरुपशुष्यति।

तस्मात् पुरुषो मतिमानात्मनः शरीरमनुरक्षञ्छुक्रमनुरक्षेत्।
परा ह्येषा फलनिर्वृत्तिराहारस्येति॥8॥

भवति चात्र-
आहारस्य परं धाम शुक्रं तद्रक्ष्यमात्मनः।
क्षयो ह्यस्य बहून् रोगान्मरणं वा नियच्छति॥9॥ Ca.Ni. – 6/8,9

- When an individual is afflicted with grief, overthinking, jealousy, anxiety, fear, anger etc
- If an emaciated *invidual* is consuming excess dry food substances and drinks.
- When an individual is having weak *Prakriti*, is on fasting or taking very little amount of food.
- With above said reasons, *Rasa* is going to decrease in *Hridaya*, leading to the manifestation of *Kshaya*, due to neglect at this situation of *Kshaya*, there will be manifestation of *Shosha* and at last, the person will present with *Rajayakshma*.
- When an individual is performing excessive sexual intercourse and due to excess ejaculation, the person will have *Shukra Kshaya* in due course of time. Still the person indulges in sexual intercourse, *Shukra* (semen) will not be ejaculated, in stead, blood will be come during ejaculation. This will be followed by vitiation of *Vata Dosha.*
- Due to the excess loss of semen from the body and excess blood loss from the male urethra due to

excess indulgence in copulation, the person will have looseness of joints, dryness of the body parts, debility of the body.

- Vitiated *Vata Dosha* will circulate all over the body, dries up the *Kapha* and *Pitta* in the *Rakta* and *Mamsa Dhatu*, resulting in the pain in sides of the chest, pain in the shoulder, severe sore throat.
- Vitiated *Kapha* will afflict *Shras* (head), resulting in headache, when it afflicts *Sandhi* (joints), the person develops bodyache, tastelessness and impaired digestion.
- Due to the vitiation of *Pitta* and *Kapha Dosha* and *Pratiloma* (reverse) movement of vitiated *Vata*, the person develops fever, cough, breathlessness, hoarseness of voice and running nose. Due to continuous coughing, the person will have haemoptysis, and due to haemoptysis, the person will have profound debility. Thus, the person will have gradual decline in the health and leading to multiple complications.

## Vishamashanajanya Shosha

विषमाशनं शोषस्यायतनमिति यदुक्तं, तदनुव्या-ख्यास्यामः- यदा पुरुषः पानाशनभक्ष्यलेह्योपयोगान् प्रकृतिकरणसंयोगराशिदेशकालोपयोगसंस्थोपशयविषमानासेवते, तदा तस्य तेभ्यो वातपित्तश्लेष्माणो वैषम्यमापद्यन्ते; ते विषमाः शरीरमनुसृत्य यदा स्त्रोतसामयनमुखानि प्रतिवार्यावतिष्ठन्ते तदा जन्तुर्यद्य-दाहारजातमाहरति तत्तदस्य मूत्रपुरीषमेवोपजायते भूयिष्ठं नान्यस्तथा शरीरधातुः; स पुरीषोपष्टम्भाद्वर्तयति, तस्माच्छुष्यतो विशेषेण पुरीषमनुरक्ष्यं तथाऽन्येषामतिकृशदुर्बलानां; तस्यानाप्यायमानस्य विषमाशनोपचिता दोषाः पृथक् पृथगुपद्रवैर्युञ्जन्तो भूयः शरीरमुपशोषयन्ति।

तत्र वातः शूलमङ्गमर्दं कण्ठोद्ध्वंसनं पार्श्वसंरुजनमंसावमर्दं स्वरभेदं प्रतिश्यायं चोपजनयति; पित्तं ज्वरमतीसारमन्तर्दाहं च; श्लेष्मा तु प्रतिश्यायं शिरसो गुरुत्वमरोचकं कासं च, स कासप्रसङ्गादुरसि क्षते शोणितं निष्ठीवति, शोणितगमनाच्चास्य दौर्बल्यमुपजायते।

एवमेते विषमाशनोपचितास्त्रयो दोषा राजयक्ष्याणमभिनिर्वर्तयन्ति।

स तैरुपशोषणैरुपद्रवैरुपद्रुतः शनैः शनैः शुष्यति।

तस्मात् पुरुषो मतिमान् प्रकृतिकरणसंयोगराशिदेशकालोपयोगसंस्थोपशयादविषममाहारमाहरेत्॥10॥

भवति चात्र-

हिताशी स्यान्मिताशी स्यात्कालभोजी जितेन्द्रियः।
पश्यन् रोगान् बहून् कष्टान् बुद्धिमान् विषमाशनात्॥11॥

Ca.Ni. – 6/10,11

- When an individual is taking food substances in edible, drinkable, chewable forms irregularly i.e. not following *Ashta Ahara Vidhi Visheshayatana* (nature, combinations, amount, place, time and rules of dietetics), that will lead to vitiation of *Vata*, *Pitta* and *Kapha*.
- These vitiated *Dosha* will obstruct the different channels of the body, leading to the formation of *Mutra* and *Purisha* and no other *Dhatu* (body tissues) are formed. That is the reason, when you make the diagnosis of *Rajayakshma*, one should protect the excess movement of *Purisha* from the body.
- Vitiated *Vata Dosha* is responsible for pricking type of pain, bodyahce, severe sore throat, pain in the sides of the chest, hoarseness of voice and running nose.
- Vitiated *Pitta Dosha* is responsible for fever, diarrhoea and burning sensation inside the body.
- Vitiated *Kapha Dosha* is responsible for running nose, heaviness of the head, tastelessness and cough. Due to the continuous coughing, the person will have haemoptysis and due to haemoptysis, the patient develops severe debility. Thus, the person will develop the gradual progression of *Rajayakshma*.
- That is the reason, the person has to take adequate amount of food as per the prescribed way.

## Lakshana of Rajayakshma based on Ayatana of Rajayakshma

| Sahasa | Vega Sandharana | Kshaya | Vishamashana |
|---|---|---|---|
| Shirah Shula | Shirah Shula | Shirah Shula | Shirah Shula |
| Kanthodhvamsa | Amsavamarda | Amsa Tapa | Amsa Tapa |
| Kasa | Kasa | Kasa | Kasa |
| Svarabheda | Svarabheda | Svarabheda | Svara Bheda |
| Arochaka | Arochaka | Arochaka | Arochaka |
| Parshva Shula | Parshva Shula | Parshva Shula | Parshva Shula |
| Atisara | Atisara | Atisara | Rakta Vamana |
| Jrimbha | Angamarda | Angamarda | Angamarda |
| Jvara | Jvara | Jvara | Jvara |
| Urah Shula | Pratishyaya | Pratishyaya | Pratishyaya |
| Rakta Mishrita Kapha Shtivana | Vamana | Shvasa | Vamana |

*Anuloma Kshaya* and *Pratiloma Kshaya* are two types of pathological phenomena seen in the patients of *Rajayakshma*. This is the contribution of *Sushruta* and *Madhavakara*.

*Anuloma Kshya* is the mechanism where in we will observe sequential loss of body tissues from *Rasa*, *Rakta*, *Mamsa*, *Medas, Asthi, Majja* and *Shukra*.

*Pratiloma Kshaya* is the mechanism where in we will observe the sequential loss of body tissues in the reverse order i.e, *Shukra, Majja, Asthi, Medas, Mamsa, Rakta* and *Rasa*.

## Trirupa Rajayakshma[16]

अंसपार्श्वाभितापश्च संतापः करपादयोः।
ज्वरः सर्वाङ्गगश्चेति लक्षणं राजयक्ष्मणः॥5॥
Ma.Ni. – 10/5

- **Amsa Parshvabhitapa** – burning sensation of shoulder and sides of the chest
- **Karapadayoh Santapa** – local raise of temperature on palms and soles
- **Sarvangaga Jvara** – raised body temperature all over the body

## Shadrupi Rajayakshma[17]

यक्ष्मणः षडिमानि वा।
कासो ज्वरः पार्श्वशूलं स्वरवर्चोगदोऽरुचिः॥46॥

- **Kasa** – cough
- **Jvara** – fever
- **Parshvashula** – pricking type of pain in sides of the chest
- **Svaragada** – hoarseness of voice
- **Varcho Gada** – diarrhoea
- **Aruchi** – tastelessness

## Ekadasha Rupi Rajayakshma[18]

कासोंऽसतापो वैस्वर्यं ज्वरः पार्श्वशिरोरुजा।
छर्दनं रक्तकफयोः श्वासवर्चोगदोऽरुचिः॥45॥
रूपाण्येकादशैतानि यक्ष्मणः
Ca.Ci. – 8/45,46

- **Kasa** – cough
- **Amsatapa** – raised temperature in shoulder region
- **Vaisvarya** – hoarseness of voice
- **Jvara** – fever
- **Parshvaruja** – pain in sides of the chest
- **Shiroruja** – headache
- **Rakta Chardana** – vomiting of blood
- **Kapha Chardana** – vomiting of mucus
- **Shvasa** – breathlessness
- **Varchogada** – diarrhoea
- **Aruchi** - tastelessness

## Shosha

### Introduction

'परं दिनसहस्रं तु यदि जीवति मानवः।
सुभिषग्भिरुपक्रान्तस्तरुणः शोषपीडितः' Madhu, Ma.Ni. – 10/13
संशोषणाद्रसादीनां शोष इत्यभिधीयते।
Su.Ut. – 41/- ; Madhu, Ma.Ni. – 10/1

*Shosha*[19] is the spectrum of the diseases where the suffering individual will be having excess depletion of the body tissues. As per *Madhukosha* commentary, if an individual suffering from *Rajayakshma* and if he lives 1,000 days, then such a patient is considered to be suffering from *Shosha*. According to *Sushruta*, in *Shosha*, we can observe the depletion of *Rasa* etc *Dhatu*, that is why the term *Shosha* is used. As per the *Ayurveda* literatures, *Shosha* is the synonym of *Rajayakshma*. *Madhavakara* and *Sushruta* has mentioned another version of *Shosha* which will be the main discussion topic in the present chapter.

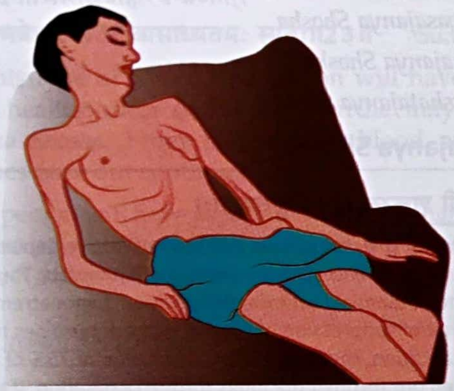


**Figure 30:** Lakshana of Shosha

---

G K

[16] When one observes these Lakshana, it implies that the person may have raise of the temperature especially in the exterior of the body i.e. pathogens may be seen in intravascular compartment.

[17] Shadrupi Rajayakshma is having 6 major Lakshana – Kasa, Jvara, Parshvashula, Svaragada, Atisara and Aruchi. The presence of Kasa, Jvara, Parshvashula, Svaragada may indicate the affliction of Pranavaha Srotas or respiratory system; where in the presence of Atisara and Aruchi may indicate the affliction of Annavaha Srotas and Purishavaha Srotas or alimentary canal.
- As per fundamentals of Ayurveda, Mahasrotas is comprised of Pranavaha, Annavaha and Purishavaha Srotas.
- In this situation, the primary Srotas afflicted in this situation Mahasrotas is afflicted, wherein Pranavaha, Annavaha and Purishavaha Srotas incorporate Mahasrotas.

[18] When one observe these Lakshana, Kasa, Vaisvarya, Jvara, Parshvaruja, Shiroruja, Kapha Chardana, Shvasa may indicate the affliction of Pranavaha Srotas; Rakta Chardana, Atisara, Aruchi and Jvara may indicate the Annavaha Srotas affliction. Thus, altogether, Pranavaha, Annavaha and Purishavaha Srotas can be observed. When the person is presented with Jvara, it may indicate the affliction of Rasavaha Srotas.
- When a clinician connects the dots in relation to Ekadasha Rupi Rajayakshma, we may predict the sequential involvement of Pranavaha, Annavaha, Rasavaha and Rasavaha Srotas.

[19] Whenever an individual is having depletion of body tissues or emaciation, that implies that the person is having the sequential loss of carbohydrates, fats and proteins from the body. This may also be associated with excess fluid loss and electrolytes as well.

## Nidana of Shosha

क्षयाद्वेगप्रतीघातादाघाताद्विषमाशनात्॥8॥
जायते कुपितैर्दोषैर्व्याप्त देहस्य देहिनः। Su.Ut. – 41/8,9
क्षयादित्यादिहेतुभिः कुपितैर्दोषैर्व्याप्तदेहस्य शोषो जायते इति संबन्धः।
Dalhana, Su.Ut. – 41/8,9

- *Dhatu Kshaya*[20] (depletion of body tissues)
- Suppression of the natural urges[21]
- Trauma[22]
- Intake of food substances at abnormal amount and at improper time[23]

As per *Dalhana*, the person who is exposed to *Kshaya* etc etiological factors, the vitiated *Dosha* will move all over the body and lead to the manifestation of *Shosha*.

## Types of Shosha

व्यवायशोकबार्धक्यव्यायामाध्वप्रशोषितान्।
व्रणोरःक्षतसंज्ञौ च शोषिणौ लक्षणैः शृणु॥14॥ Ma.Ni. – 10/14
व्यवायशोकस्थाविर्यव्यायामाध्वोपवासतः।
व्रणोरः क्षत पीडाभ्यां शोपानन्ये वदन्ति हि॥16॥ Su.Ut. – 41/16

1. *Vyavayajanya Shosha*
2. *Shokajanya Shosha*
3. *Vardhakya (Sthavirya) janya Shosha*
4. *Vyayamajanya Shosha*
5. *Adhvajanya Shosha*
6. *Upavasajanya Shosha*
7. *Vranajanya Shosha*
8. *Urakshatajanya Shosha*

## Vyavayajanya Shosha

व्यवायशोषी शुक्रस्य क्षयलिङ्गैरुपद्रुतः।
पाण्डुदो यथापूर्व क्षीयन्ते चास्य धातवः॥15॥ Ma.Ni. – 10/15

- If a person indulges in excess sexual intercourse[24], there will be decrease in *Shukra Dhatu*. Decrease in *Shukra Dhatu* leads to the decrease in *Ojas* and the outcome of this mechanism is manifestation of *Kshaya*. Due to this pathological mechanism, there will be *Pratiloma Kshaya* i.e. first there will be reduction in *Shukra Dhatu*, then the person will have reduced *Majja Dhatu* and this will be responsible for *Asthi Dhatu* and so on till the decrease of *Rasa Kshaya*.
- In this patient, there will be body which will have *Pandu Varna* (yellowish white discolouration).
- In this, the person will have *Shukra Dhatu Kshaya Lakshana*.

"शुक्रक्षये मेढ़्वृषणवेदना, अशक्तिमैथुने, चिराद्वा प्रसेकः, प्रसंकं चाल्पदर्शनं रक्तस्य शुक्रस्य वा"
Madhu, Ma.Ni. – 10/15; Su.Su. – 15/13

- The *Shukra Kshaya Lakshana* mentioned by *Sushruta* are pain in the penis and scrotum, inability to perform sexual activities, delayed ejaculation and presence of blood and little amount of sperm in the semen.

## Shoka Shosha

प्रध्यानशीलः स्त्रस्ताङ्गः शोकशोप्यपि तादृशः। Ma.Ni. – 10/16
प्रध्यानशीलः स्वस्ताङ्गः शोकशोप्यपि तादृशः।
बिना शुक्रक्षयकृतैर्विकारैरभिलक्षितः॥18॥ Su.Ut. – 41/18

- This type of *Shosha*[25] results in an individual due to excess and continuous grief or worry by the patient. The grief may be caused due to sudden departure of the loved ones or a disaster in one's life.
- The person suffering from *Shoka Shosha* is usually suffering from continuous *thinkin* on one particular

---

**GK**

[20] Because of this, the person will have excessive depletion of the macro nutrients such as carbohydrates, fats and proteins as well as water; and micronutrients such as vitamins and minerals. Thus, we can observe the clinical features related to deficiencies of these substances such as hypoglycaemia; cachexia; dehydration; hyponatremia; vitamin deficiencies etc.

[21] The type of suppression of natural urges determines the nature of manifestation of Shosha. For example, if the person suppresses the urge of defaecation, that will lead to absorption of 75% of water along with 6.4 to 9.4 litres of air produced in the large intestine, which will be expelled out through the lungs through expiration. If the person is suppressing the urge of coughing, sneezing, effortful breathing; that will lead to reverse entry of pathogens into the lower respiratory tract leading to the manifestation of symptoms of lower respiratory tract.

[22] When the person is exposed to this particular cause, then first of all, the area of trauma has to be enquired first. If it is externally visible trauma, then it induces traumatic shock which further leads to hypovolemia leading to the reduced hypoperfusion to the intercellular and intracellular compartments. Suppose, if the chest injury is being observed, then the person may have severe chest pain, haemoptysis etc leading to compromise in respiratory function. This will further leads to hypoxia and reduced oxygen supply to the interstitial and intracellular compartments.
Thus area of injury, extent of injury, physical strength of the patient etc are counted while deciding this particular aetiological factor.

[23] This aetiological factor will lead to the sequential depletion of carbohydrates, fats and proteins, water, minerals, vitamins etc. as the person is not taking the food substances at adequate quantity and at appropriate time too.

[24] When the individual is indulging in excess sexual intercourse, that may lead to entry of the pathogens through urethra or vagina. As the individual may have development of sexually transmitted infection, this may lead to raised WBC formation leading to the overactivity of PHSC (pluripotent haemopoietic stem cells), and these are usually present inside the bone marrow. In due course of time, this may lead to hampered secretion of other cells such as RBCs and platelets.

[25] When an individual is exposed to grief more frequently, this may lead to activation of sympathetic nervous system which in turn may lead to the hampered secretion of alimentary secretions leading to the decreased absorption of micronutrients to the body.
- Thus, frequent exposure to grief may lead to sequential loss of carbohydrates, fat and proteins in due course of time.
- Emaciation will be the sequel in this situation.

point and looseness of the body parts. The person will have depression and he will not have any desire to take food and nutrition.

- Here, the patient will suffer from severe *Dhatu Kshaya* (depletion of body tissues) and he will not suffer from *Shukra Kshaya Lakshana* (clinical features indicating the decrease of *Shukra Dhatu* in the body).

## Jara (Sthaviirya or Vardhakya) Shosha[26]

जराशोषी कृशो मन्दवीर्यबुद्धिबलेन्द्रियः॥16॥
कम्पनोऽरुचिमान् भिन्नकांस्यपात्रहतस्वरः।
तिष्मणा हीनं गौरवारतिपीडितः॥17॥
संप्रस्नुतास्यनासाक्षिः शुष्करूक्षमलच्छविः।

Ma.Ni. – 10/16,17; Su.Ut. – 41/19,20

- This type of *Shosha* is seen in elderly individuals. The person will be emaciated and there will be vitiation of *Vata Dosha.* He will have less physical strength, less mental stamina and poor functioning of *Indriya.* Apart from the above said *Lakshana,* following *Lakshana* may also be observed.
- Involuntary movements.
- Tastelessness
- Loss of voice or the sound produced similar to the sound produced by a broken bronze vessel
- Cough with less sputum
- Heaviness of the body parts and restlessness
- Deformities of mouth, nose and eyes
- Dry faecal matter and sometimes very hard stools

## Adhva Shosha[27]

अध्वशोषी च स्वस्ताङ्गः संभृष्टपरुषच्छविः॥
प्रसुप्तगात्रावयवः शुष्कक्लोमगलाननः।

Ma.Ni. – 10/18,19; Su.Ut. – 41/21

- In this type of *Shosha,* the main cause is excess walking. Excess walking causes *Mamsa Kshaya* which in turn can be identified by depletion of muscular tissue.
- The person will present with poor functioning of body parts
- Dry and lustreless skin
- Numbness of tingling sensation of the skin
- Dryness of the palate, throat and oral cavity

## Vyayama Shosha[28]

व्यायामशोषी भूयिष्ठमेभिरेव समन्वितः।
लिङ्गैरुरःक्षतकृतैः संयुक्तश्च क्षतं विना॥19॥ Ma.Ni. – 10/19

व्यायामशोपी भूयिष्ठमेभिरेव समन्वितः।
उरःक्षतकृतैर्लिङ्गैः संयुक्तश्च क्षताद्विना॥22॥ Su.Ut. – 41/22

- In this type of *Shosha,* the *Lakshana* mentioned in *Adhva Shosha* will be manifested in severe form. This manifests in an individual who does excessive physical activity beyond one's capacity.
- There will be decrease of *Medas* and *Mamas* which leads to the loss of weight.
- The *Lakshana* of *Vyayama Shosha* are similar to *Adhva Shosha.*

## Vrana Shosha[29]

रक्तक्षयाद्वेदनाभिस्तथैवाहारयन्त्रणात्।
व्रणितस्य भवेच्छोषः स चासाध्यतमो मतः॥20॥ Ma.Ni. – 10/20

रक्तक्षयाद्वेदनाभिस्तथैवाहारयन्त्रणात्।
व्रणितस्य भवेच्छोपः स चासाध्यतमः स्मृतः॥23॥ Su.Ut. – 41/23

- In this type of *Shosha,* the person will have chronic non healing ulcer or fistula, then he may develop *Vrana Shosha.* From the wound, blood and other tissues ooze out continuously.
- The person will have associated with *Lakshana* such as severe pain at the wound region and it is considered to be *Asadhya* (incurable).

## Upavasajanya Shosha[30]

Only the terminology of *Upavasajanya Shosha* is mentioned and the description of *Upavasajanya Shosha* is not being described in either *Sushruta Samhita* or *Madhava Nidana*.

---

[26] In this situation, the person may have one or multiple debilitating illnesses, which may lead to the sequential depletion of the carbohydrates, fats and proteins. This may lead to the metabolic acidosis in the body (ketoacidosis and lactic acidosis). Thus, the person may have emaciation of the body.

[27] The term Adhva refers to walking. In this context, the term excess walking more than one's capacity has to be considered. In a marathon race (running for a distance of 42.2 kms/ 26.2 miles), the metabolism of the body may increase to 2000% above normal metabolism at rest. In other words, there will be sequential depletion of carbohydrates, fats and proteins, and electrolytes can be seen.

[28] In this instance, the term Vyayama refers to excess exercise more than one's own capacity. This can be understood by knowing the rate of metabolism occurring in marathon race. In a marathon race (running for a distance of 42.2 kms/ 26.2 miles), the metabolism of the body may increase to 2000% above normal metabolism at rest. In other words, there will be sequential depletion of carbohydrates, fats and proteins, and electrolytes can be seen.

[29] When an individual presents with non healing ulcer for a longer period of time, that will lead to the rapid depletion of macronutrients (carbohydrates, fats and proteins) and micronutrients (electrolytes). Thus, in this situation, the suffering individual may have emaciation of the body.

[30] In fasting, the person may have sequential depletion of macronutrients carbohydrates, fats and proteins respectively, along with water and electrolytes sodium, potassium, chloride and calcium ions in particular. Thus, the person who are on continuous fasting for longer time period, there may be the possibility of emaciation of the body.

## Urakshatajanya Shosha[31]

व्यायामभाराध्ययनैरभिघातातिमैथुनैः।
कर्मणा चाप्युरस्येन वक्षो यस्य विदारितम्।
तस्योरसि क्षते रक्तं पूयः श्लेष्मा च गच्छति॥24॥
कासमान छर्दयेच्च पीतरक्तासितारुणम्।
संतप्तवक्षाः सोऽत्यर्थं दूयनात्परिताम्यति॥25॥
दुर्गन्धवदनोच्द्वासो भिन्नवर्णखरो नरः॥26॥ Su.Ut. – 41/24-26

- The etiological factors such as excess exercise, lifting heavy weights, excess studying, trauma, excess sexual intercourse will lead to the injury to the chest. This is called as *Urakshatajanya Shosha*.
- This is associated with trauma to chest and the person passes reddish, pus mixed, mucoid sputum on coughing and sometimes, he will have vomiting with yellowish, reddish or whitish coloured content.
- He may have burning sensation in the chest, foul smell from the mouth and foul smell from the breath and hoarseness of voice.
- The description of *Urakshatajanya Shosha* given by *Charaka* is similar to the description of *Urakshata* mentioned in the context of *Kshatakshina Adhyaya*.

**Key summary of the chapter**

- Rajayakshma is the spectrum of diseases where in vitiation of all three Dosha vitiation, affliction of all seven Dhatu is being observed.

**अनेकरोगानुगतो बहुरोगपुरोगमः। राजयक्ष्मा क्षय. शोषो रोगराडिति च स्मृतः॥1॥** A.Hr.Ni. – 5/1

- Rajayakshma is considered to be associated with multiple diseases which occur prior to the manifestation of Rajayakshma and multiple diseases will follow Rajayakshma. That is the reason, Rajayakshma is considered to be the king of the diseases or one of the major diseases.
- As far as types of Rajayakshma are concerned, 4 types of Rajayakshma are mentioned based on Ayatana or Nidana. They are Sahasajanya, Vishamashanajanya, Sandharanajanya and Kshayajanya.
- Depending upon the pathogenesis happening inside the patient of Rajayakshma, two types of Samprapti are being mentioned. Anuloma Kshaya and Pratiloma Kshaya. In case of Anuloma Kshaya, sequential depletion of Dhatu from Rasa to Shukra Dhatu occurs. In case of Pratiloma Kshaya, sequential depletion of Dhatu from Shukra to Rasa Dhatu occurs.
- Depending upon the nature of symptoms of Rajayakshma, three types of Rajayakshma are mentioned. They are Trirupi (having 3 main Lakshana), Shadrupi (having 6 main Lakshana) and Ekadasharupi (having 11 main Lakshana) Rajayakshma.
- Pranavaha, Annavaha, Purishavaha and Rasavaha Srotas affliction may be seen initially, later affliction of multiple Srotas can be observed.
- Rajayakshma is considered to be associated with multiple diseases which occur prior to the manifestation of Rajayakshma and multiple diseases will follow Rajayakshma. That is the reason, Rajayakshma is considered to be the king of the diseases or one of the major diseases.

**'परं दिनसहस्त्रं तु यदि जीवति मानवः। सुभिषग्भिरुपक्रान्तस्तरुणः शोषपीडितः'**
**संशोषणाद्रसादीनां शोष इत्यभिधीयते।** Madhu, Ma.Ni. – 10/13

Su.Ut. – 41/- ; Madhu, Ma.Ni. – 10/1

- There are two different meanings for the description Shosha. As per Madhukosha commentary, if an individual is suffering from Rajayakshma and if he lives his/ her life 1,000 days, then such individual is said to be suffering from Shosha disease. As per Sushruta, depletion of Rasa etc Dhatu is observed in Shosha. In essence, Shosha is that spectrum of diseases where the individual will have excessive depletion of body tissues. As per Sushruta, Shosha is the synonym of Rajayakshma.
- Dhatukshaya (depletion of body tissues); suppression of natural urges; trauma and intake of food at inappropriate quantity and at improper time are the Nidana for the manifestation of Shosha.
- 8 types of Shosha are explained in Madhava Nidana by Madhavakara. They are Vyavayajanya; Shokajanya; Vardhakyajanya; Vyayamajanya; Adhvajanya; Upavasajanya; Vranajanya; Urakshatajanya Shosha.

---

**GK**

[31] When an individual is presented with chest injury, there may be the possibility of the affliction of rib fractures, aortic ruptures, lung contusion or development of shock due to internal haemorrhages.

- This condition may be associated with rapid depletion of macronutrients and micronutrients as this is one of the grave condition afflicting the individuals.
- Thus, the person may have emaciation secondary to the development of metabolic acidosis (ketoacidosis and lactic acidosis).

## Probable questions asked in university examination

### Short essay questions

- Explain the Sankhya Samprapti of Rajayakshma
- Explain Sahasajanya Rajayakshma
- Explain Ekadasharupi Rajayakshma
- Explain the types of Samprapti of Rajayakshma
- Explain the types of Shosha
- Describe Nidana and types of Shosha

### MCQs

**1. Which of the following is not the synonym of Rajayakshma?**

a. Shosha; b. Kshaya;
c. Rogarat; d. Varchogada

*Answer*: (d)

**2. The Dhatu Kshaya begins in Pratiloma Kshaya type of Rajayakshma from**

a. Rasa Dhatu; b. Majja Dhatu;
c. Asthi Dhatu; d. Shukra Dhatu

*Answer*: (d)

**3. Which of the following is not the Lakshana of Shadrupi Rajayakshma?**

a. Rakta Chardana; b. Shvasa;
c. Atisara; d. Kasa

*Answer*: (a)

**4. Sankhya Samprapti of Rajayakshma is described based on**

a. Lakshana; b. Nidana;
c. Purvarupa; d. Upashaya

*Answer*: (b)

**5. Which of the following is not mentioned in the context of Sankhya Samprapti of Rajayakshma?**

a. Sahasa; b. Vishamashana;
c. Vegasandharana; d. Adhyashana

*Answer*: (d)

**6. Find the one which does not belong to one group**

a. Carbohydrate; b. Glucose;
c. Fat; d. Protein

*Answer*: (b)

**7. Mechanism of ketoacidosis occurs as a result of over-metabolism of**

a. Carbohydrate; b. Fat;
c. Protein; d. Myoglobin

*Answer*: (b)

**8. The terms Anuloma and Pratiloma are associated with which of the following diseases?**

a. Shvasa; b. Hikka;
c. Kasa; d. Rajayakshma

*Answer*: (d)

**9. Langhana therapy is indicated in all of the diseases except**

a. Jvara; b. Raktapitta;
c. Kaphaja Gulma; d. Rajayakshma

*Answer*: (d)

**10. Rogamarga afflicted in the Rajayakshma disease is**

a. Bahya; b. Abhyantara;
c. Madhyama; d. None of the above

*Answer*: (c)

**11. The number of days a person will live in case of diagnosis of Shosha from the day of manifestation as per Madhukosha commentary is**

a. 100 days; b. 500 days;
c. 1,000 days; d. 10,000 days

**12. Sankhya Samprapti of Shosha is**

a. 5 types; b. 7 types;
c. 8 types; d. 1 type

*Answer*: (c)

**13. The word Sthavira in Sthavirajanya Shosha refers to Shosha observed in**

a. Children;
b. Middle aged males;
c. Females of reproductive age group;
d. Old aged people

*Answer*: (d)

**14. Scurvy is caused by the deficiency of**

a. Vitamin A; b. Vitamin C;
c. Vitamin D; d. Vitamin E

*Answer*: (b)

**15. The description of Urakshatajanya Shosha resembles the description of ..........of Charaka Samhita.**

a. Kasa; b. Shvasa;
c. Kshatakshina; d. Svarabheda

*Answer*: (c)

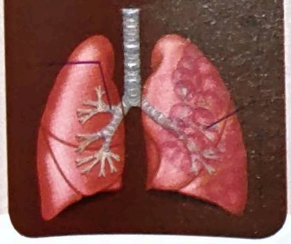
### Chapter resources

- https://my.clevelandclinic.org/health/diseases/24492-metabolic-acidosis
- https://wellcomecollection.org/works/hur7rekt/items
- Charaka Samhita, Nidana Sthana – 6th chapter – Shosha Nidana Adhyaya

- Charaka Samhita, Chikitsa Sthana – 8th chapter – Rajayakshma Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra – 41st chapter – Shosha Pratishedha Adhyaya
- Ashtanga Hridaya, Nidana Shtana – 5th chapter – Rajayakshmadi Nidana Adhyaya
- Madhava Nidana – 10th chapter – Rajayakshma Kshatakshina Nidana Adhyaya
- Charaka Samhita, Nidana Sthana 6th chapter – Shosha Nidana Adhayya
- Sushruta Samhita, Uttara Tantra – 41st chapter – Shosha Pratishedha Adhyaya
- Madhava Nidana 10th chapter – Rajayakshma Kshatakshina Nidana
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

# CHAPTER
# 16



# Common Lung Disorders

**Learning Objectives**

- To have an overall review of respiratory disorders
- To know clinical features of pneumona, chronic obstructive pulmonary diseases (COPD), pleural effusion, bronchiectasis
- To know the physical examination routinely done in the examination of above said diseases
- To know the different investigations performed and their laboratory interpretations

## Introduction

Respiratory system is one of the systems of the human body where the exposure of the etiological factor in most of the occasions is through either nose or mouth; less frequently through heart via pulmonary capillaries and even less frequently through alimentary canal through reverse movement happening via oesophagus.

Depending upon the nature of aetiological factor, virulence of aetiological factor, number of aetiological factors entering into the respiratory system, nature of immune status of the human body, the clinical features may vary.

If the aetiological factors enter via nose, the clinical symptoms start from nose, nasopharynx and if the aetiological factors enter via oral cavity, initial symptoms start from oral cavity, larynx etc. if the aetiolgical factors enter into the respiratory passages through pulmonary capillaries, the initial symptoms start as cough with pink and frothy sputum.

### Peculiarities of respiratory system and diagnosis of respiratory disease:

- Respiratory system is a peculiar system where entry and exit of the aetiological factor is the same i.e. through nose. In other words, oxygen rich air and carbon dioxide rich air move via nose and nasal cavity.
- Respiratory system can be divided into upper and lower respiratory system. Upper respiratory system is comprising of organs from nose to larynx and lower respiratory system is comprising of organs from trachea to alveoli. Pleural cavity is considered as associated part of lower respiratory tract.
- When upper respiratory tract is involved, an individual may have sneezing, blockage of nose and nasal cavity, imperception of smell perception, running nose, pain in the ears (due to blockage of eustachian tube), cough with or without expectoration, breathlessness during inspiration, post nasal drip, mouth breathing (due to nasal blockage) and hoarseness of voice. When the lower respiratory tract is afflicted, the person may have breathlessness during expiration, cough, expectoration of sputum, chest discomfort, haemoptysis. When an individual is having affliction of pleural space, he may have short cough with pain on sides of the chest while coughing.
- When an individual is presented with known respiratory disease, sooner or later he may have affliction of right side of the heart (right ventricle or right atrium) which is being termed as cor pulmonale.

## Pneumonia

Pneumonia **(see Figure 31)** is acute inflammation of the lungs caused by infection. Initial diagnosis is usually based on chest x ray. Causes, symptoms, treatment, preventive measures and prognosis differ depending on whether the infection is bacterial, viral, fungal or parasitic; whether it is acquired in the community, hospital or nursing home; whether it develops in a patient who is immunocompetent or immunocompromised.

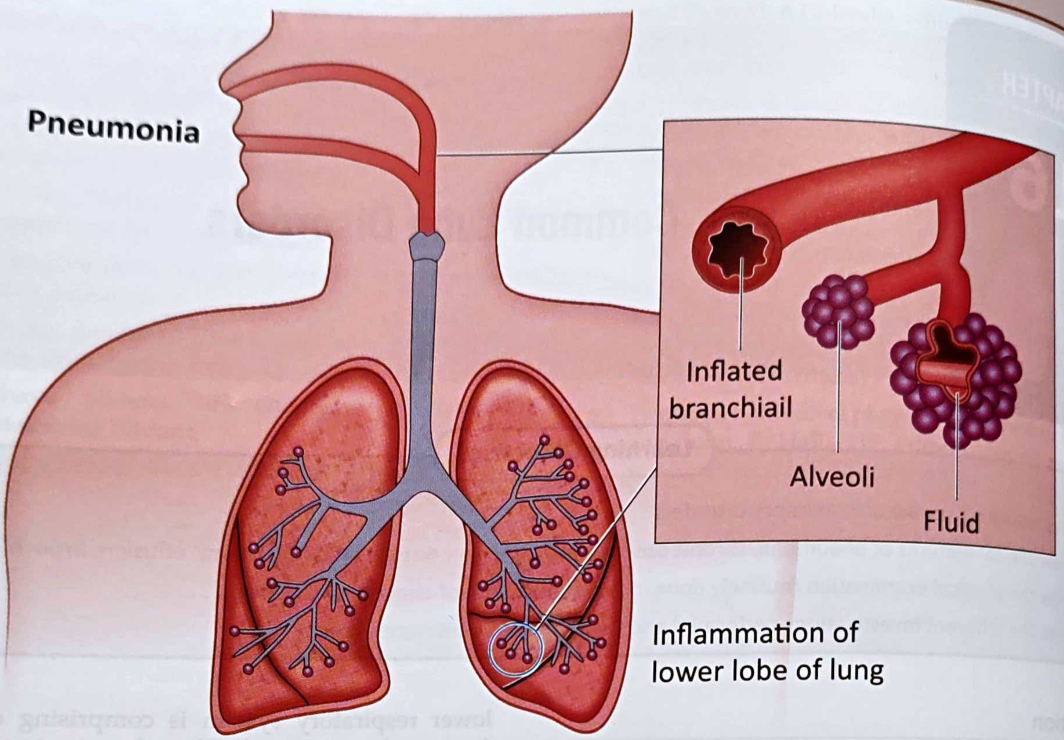


**Figure 31:** Mechanism of pneumonia

- Clinical features may vary depending upon the cause, setup where the infection has occurred in the patient and nature of the immunity of the patient who has acquired pneumonia.
- In community acquired pneumonia, symptoms and signs include productive cough, pleuritic chest pain, dyspnoea, tachypnoea and tachycardia. This may be associated with fever, bronchial breath sounds, crackles and dullness on percussion. Nasal flaring and use of accessory respiratory muscles may also be seen.
- In hospital acquired pneumonia, the clinical features are similar to those of community acquired pneumonia, but in ventilated patients, pneumonia may also manifest as worsening oxygenation and increased tracheal secretions.
- In nursing home acquired pneumonia, the clinical features are similar to the symptoms of other settings, but the mortality in nursing home acquired pneumonia are moderately high, but may be due to the presence of comorbidities.
- Diagnosis is done by chest x ray **(see Figure 32)** bronchoscopy, blood cultures, assessment of renal function and oxygenation, pulse oximetry. Chest x ray is the earliest diagnostic tool in the diagnosis of pneumonia and other investigation tools help in the cause of the disease and prognosis of the disease in the patients.

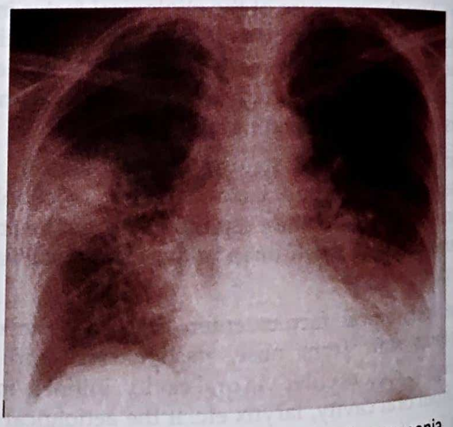


**Figure 32:** Chest X ray of patient of pneumonia

## Chronic Obstructive Pulmonary Diseases (COPD)

Chronic Obstructive Pulmonary Disease (COPD) ( **Figure 33)** is partially reversible airflow limitation cau by inflammatory response to inhaled toxins, o cigarette smoke. Symptoms generated are produc cough and breathlessness that develop over years. Si include decreased breath sounds, prolonged expirat phase of respiration and wheezing. Severe cases n have weight loss, pneumothorax, right heart failure a acute or chronic respiratory failure. Diagnosis is based history, physical examination, chest x ray and pulmon function tests. COPD comprises chronic obstruc bronchitis and emphysema.

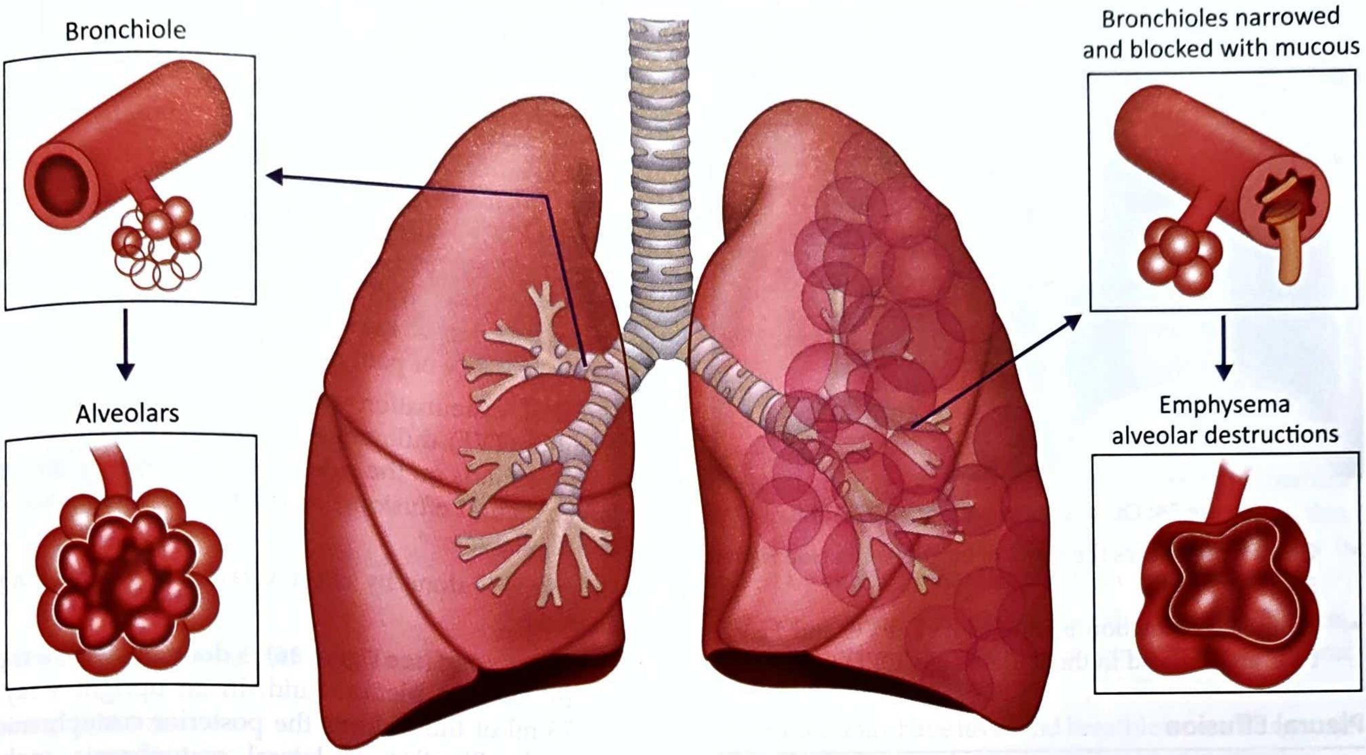

Bronchiole
Alveolars
Bronchioles narrowed and blocked with mucous
Emphysema alveolar destructions

**Figure 33:** Mechanism of COPD

- Chronic obstructive bronchitis is chronic bronchitis with airflow obstruction. Chronic bronchitis is defined as productive cough on most days of the week for at least 3 months total duration for consecutive 2 years. Chronic bronchitis becomes chronic obstructive bronchitis if spirometric evidence of airflow obstruction develops. Chronic asthmatic bronchitis is a similar, overlapping condition characterized by chronic productive cough, wheezing and partially reversible airflow obstruction. It occurs predominantly in smokers, with a history of asthma.
- Emphysema is destruction of lung parenchyma leading to loss of elastic recoil and loss of alveolar septa and radial airway traction, which increases the tendency of airway collapse. Lung hyperinflation, airflow limitation and air trapping follow.
- Etiology of chronic obstructive pulmonary disease is smoking and genetic factors.

### Pathology of COPD

- **Inflammation:** inhalation of cigarette smoke etc irritants triggers inflammatory response.
- Infection: this may occur along with inflammation, the most common cause is being bacteria, Haemophilus influenzae in particular.
- Airflow limitation: this is caused by airway obstruction, loss of elastic recoil or both.
- Complications of this pathological event are pulmonary hypertension, respiratory infection, weight loss.

### Clinical features

- COPD takes years to develop and progress. Most patients have smoked ≥ 20 cigarettes/ day for ≥ 20 years.
- Productive cough is the initial symptom, developing in smokers in their 40s or 50s.
- Breathlessness (dyspnoea) that is progressive, persistent, exertional or worse during respiratory infection, appears when patients are in their 40s or 50s.
- Symptoms usually progress quickly in patients who continue to smoke and in those who have a higher lifetime tobacco exposure.
- Morning headache develops in more advanced disease and signals nocturnal hypercapnia or hypoxemia.
- Signs of COPD include wheezing, increased expiratory phase of breathing, lung hyperinflation manifested as decreased heart and lung sounds and increased antero-posterior diameter of thorax (barrel shaped chest). In advanced cases of COPD, pursed-lip breathing, accessory respiratory muscles usage, paradoxical inward movement of lower intercostal interspaces during inspiration (Hoover's sign), central cyanosis. Signs of cor pulmonale may develop which include neck vein distension, S2 split with accentuated pulmonary component, tricuspid regurgitation and peripheral oedema.
- Spontaneous pneumothorax may develop as a result of rupture of bullae in the lungs.

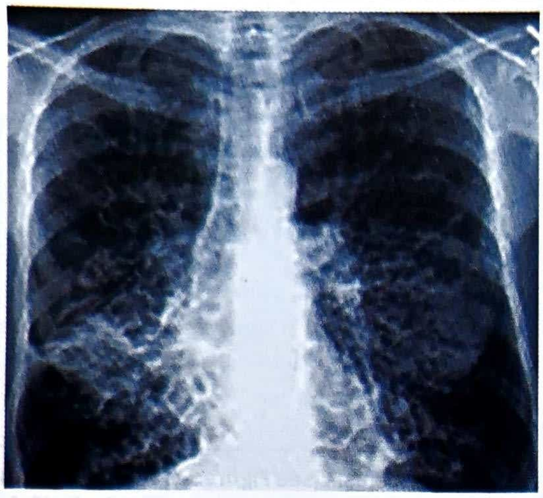


**Figure 38:** Chest X ray of patient of bronchiectasis

### High resolution CT scan

100% sensitive and specific test for the diagnosis of bronchiectasis.

### Pulmonary function tests

- These may be helpful in documenting the baseline function and for following the progression of the disease over time.
- Reduced FEV1 (Forced expiratory volume in 1 second), reduced FVC (Forced Vital Capacity) and FEV1/FVC are noted in this disease.

## Key summary of the chapter

- Respiratory system is a system of the human body where in oxygenated and deoxygenated air will move via the same passage across the human body and environment. This is further subdivided into two upper and lower respiratory system for localizing the lesion, prediction of prognosis and proper management of the disease and prevention of the disease too.
- In this chapter, pneumonia, chronic obstructive pulmonary disease, pleural effusion and bronchiectasis are explained in terms of meaning, aetiology, pathology, clinical features in brief, method of examination in these patients and diagnosis of the diseases in brief along with necessary chest x ray findings.

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain pneumonia
- Explain chronic obstructive pulmonary disease
- Explain pleural effusion
- Explain bronchiectasis

### MCQs

1. Which of the disease is responsible for the manifestation of cor pulmonale?
   a. Coronary artery disease;
   b. Chronic bronchitis;
   c. Left ventricular failure;
   d. Left atrial failure

*Answer*: (b)

2. Honeycombing appearance in the chest x ray is indicative of
   a. Pneumonia;
   b. Chronic obstructive pulmonary disease;
   c. Pleural effusion;
   d. Bronchiectasis

*Answer*: (d)

3. Meniscus sign in chest x ray is indicative of
   a. Pneumonia;
   b. Chronic obstructive pulmonary disease;
   c. Pleural effusion;
   d. Bronchiectasis

*Answer*: (c)

4. The presenting complaint 'hoarseness of voice' is indicative of the affliction of
   a. Larynx;
   b. Trachea;
   c. Nasopharynx;
   d. Primary bronchi

*Answer*: (a)

5. 30 years old female patient is presenting with cough since 4 days, running nose since 3 days, nasal blockage since 2 days and pain in the ear on left side since 1 day. Pain in the left ear is indicative of
   a. Rupture of ear ossicles on left side;
   b. Rupture of tympanic membrane on left side;
   c. Accumulation of wax in the left ear;
   d. Blockage of left eustachian tube

*Answer*: (d)

6. Barrel shaped chest is present in the patients of
   a. Pneumonia;
   b. COPD;
   c. Pleural effusion;
   d. Bronchiectasis

*Answer*: (b)

7. The amount of fluid should be present in pleural cavity, if costophrenic angle on the chest x ray PA view should be obliterated is
    - a. 10 ml;
    - b. 75 ml;
    - c. 175 ml;
    - d. 300 ml

*Answer*: (c)

8. Which of the following radiological sign is not indicative of the diagnosis of emphysema?
    - a. Reduced cardiac shadow in chest PA view;
    - b. Flattened diaphragm;
    - c. Absent hilar shadows;
    - d. Meniscus sign

*Answer*: (d)

9. Which of the following radiological sign is indicative of the diagnosis of bronchiectasis?
    - a. Flattened diaphragm;
    - b. Honeycombing;
    - c. Meniscus sign;
    - d. Bats wing appearance

*Answer*: (b)

10. Which of the following clinical condition where the individual may have breathlessness during inspiration?
    - a. Bronchiectasis;
    - b. Bronchial asthma;
    - c. Impaction of foreign body in trachea;
    - d. Nasal polyps

*Answer*: (d)

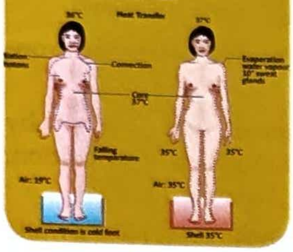
## Chapter resources

- https://www.svhlunghealth.com.au/conditions/pneumonia
- https://www.fitpaa.com/blog/what-are-the-symptoms-of-chronic-obstructive-pulmonary-disease-copd/
- https://en.wikipedia.org/wiki/Pleural_effusion
- https://www.medicoverhospitals.in/diseases/bronchiectasis/
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.chestmed.theclinics.com
- www.stritch.luc.edu
- www.rsnajournals.org

***

# CHAPTER

# 17



# Jvara

## Learning Objectives

- To know the exact meaning of Jvara
- To do the Vyadhi Vinishchaya (diagnosis) of Jvara in proper order
- To know the Vidhi Samprapti of Jvara and detailed explanation and current understanding wherever possible
- To know and analyse the Nidana (aetiological factors) of Jvara, Samprapti (pathogenesis of Jvara), Samanya Purvarupa (commonly observed prodromal symptoms), Vishishta Purvarupa (specific premonitory symptoms), Rupa (common clinical features), Pratyatma Lakshana (cardinal features) of Jvara
- To describe Doshaja Jvara, Sannipataja Jvara
- To describe Abhishanga, Vishama, Punaravartaka Jvara
- To know about Antarvega and Bahirvega Jvara, Vatabalasaka Jvara, Pralepaka Jvara
- To differentiate Ama, Pachyamana and Nirama Jvara
- To analyse Doshaja and Agantuja Jvara with respect to Jvara Samprapti
- To describe Sadhyasadhyata of Jvara
- To know the Vyadhyavastha (stage of the disease) in Jvara
- To enlist the Jvara Mukta Lakshana

## Introduction

*Jvara* **(see Figure 39)** is considered to be the first disease to evolve in the pathology as per *Ayurveda* literatures. This came into the existence due to the anger of Lord *Rudra* which was the outcome of departure of Goddess *Sati* in the event of *Daksha Yajna*. *Jvara* is the primary disease where all the creatures will definitely suffer at least once between life and death. It is characterised by increased temperature, malaise and loss of appetite. It can manifest as a primary disease or associated with other disease or even manifest as a complication. Presence of fever indicates that the disease is on progress and tend to worsen in due course of time. The course of the *Jvara* can be identified appropriately by the accurate and chronological clinical presentation in the ill individuals. The disease is considered to be *Pitta* dominant and *Amashayasamuttha Vikara* on account of *Pitta* dominance. It afflicts *Rasavaha Srotas* with *Sanga* and *Vimargagamana* as the type of *Srotodushti* happening throughout the course of the disease. *Svedavaha Srotas* will be afflicted during the progression of the disease. Depending upon the nature of clinical presentation, *Srotas* other than *Rasavaha* and *Svedavaha Srotas* will be afflicted during the progression of the disease. For example, when an individual is presented with *Kasa* (cough) along with *Jvara* (raised body temperature), we may predict the affliction of *Pranavaha Srotas* along with the afflictions of the *Rasavaha* and *Svedavaha Srotas*. When an individual is presented with Pita *Tvak*, *Netra* (yellowish discolouration of the skin, sclera) and *Jvara* (raised body temperature), we may predict the involvement of *Raktavaha Srotas* along with *Rasavaha* and *Svedavaha Srotas*. Depending upon the age of the individual, duration of exposure to the aetiological factor, nature of severity of the aetiological factor, number of *Dosha* vitiated, number of *Dhatu* afflicted, number of *Srotas* involved, *Rogamarga* involvement throughout the progression of the disease etc determine the *Sadhyasadhyata* of *Jvara*. In the following pages, we are diving deep into the subject to know more about this particular disease.

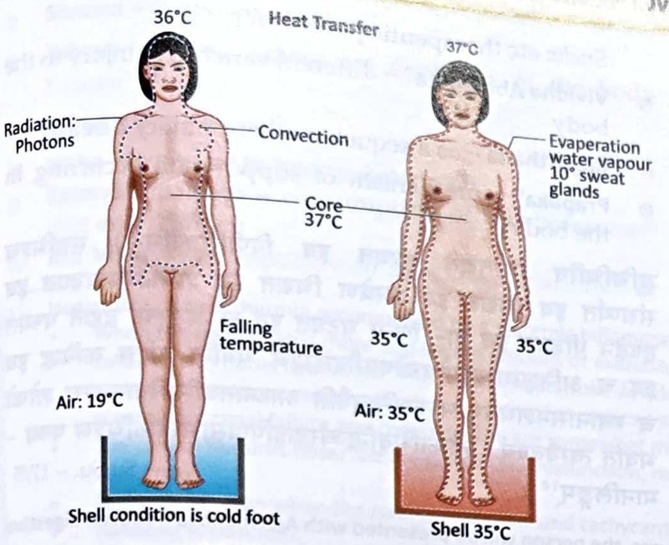


**Figure 39:** Shell and core temperature

देहेन्द्रियमनस्तापी सर्वरोगाग्रजो बली।
ज्वरः प्रधानो रोगाणामुक्तो भगवता पुरा॥4॥ Ca.Ci. – ¾

*Jvara* is considered to be one of the very prime and important disease among all diseases. As there will be the affliction of *Deha* (physique), *Indriya* (sense organs and organs of action), *Manas* (mind or *Ubhayendriya*). In the coming pages, we are learning to identify the discomfort produced due to the affliction of *Deha, Indriya* and *Manas.*

## Definition

ज्वरयति शरीराणीति ज्वरः, Ca.Ni. – 1/35
ज्वरयति संतापयति। Chakra, Ibid
ज्वरशब्देन च देहमनः संतापकरत्वं; Chakra, Ca.Ni. – 1/5
सन्तापलक्षणो ज्वर Aruna, A.Hr.Ni. – 2/3
ज्वरस्त्वेक एव संतापलक्षणः। Ca.Ni. – 1/32
अत एव सर्वकायमन सन्तापकत्व ज्वरस्याहु Aruna, A.Hr.Ni. 1/1
सन्तापलक्षणो ज्वर Dipika commentary, Sha.Pu. – 7/2
ज्वरप्रत्यात्मिकं लिङ्गं संतापो देहमानसः। Ca.Ci. – 3/31
स्वेदावरोधः सन्तापः सर्वाङ्गग्रहणं तथा॥1 3॥
विकारा युगपद्यस्मिन् ज्वरः स परिकीर्तितः। Su.Ut. – 39/13-14

By analysing above said descriptions available in different *Ayurvedic* literatures, it can be concluded that *Pitta Dosha* is the crucial *Dosha* responsible for the manifestation of *Jvara*. The following are the *Pratyatma* (cardinal) and essential features seen during the course of *Jvara*[1].

- **Svedavarodha** – absence of sweating
- **Santapa of Deha[2] and Manas[3]** – discomfort related to physique and mind
- **Sarvanga Grahana** – stiffness of all over the body[4]

## Vidhi Samprapti[5] or Classification of Jvara:

- **2 types:** *Sharirika* and *Manasika*
- **2 types:** *Saumya* and *Agneya*
- **2 types:** *Antarvega* and *Bahirvega*
- **2 types:** *Prakrita* and *Vaikrita*
- **2 types:** *Sadhya* and *Asadhya*
- **5 types:** *Santata, Satata, Anyedyushka, Tritiyaka* and *Chaturthaka*
- **7 types:** *Rasadhatugata, Raktadhatugata, Mamsadhatugata, Medodhatugata, Asthidhatugata, Majjadhatugata, Shukradhatugata*

---

[1] When one analyse the description available in the Lakshana of Jvara, we can observe the following pathological mechanisms occurring in the body.

- Peripheral vaso constriction (this is attributable to the absence of sweating)
- Sarvanga Grahana (this is attributable to the shivering or chills) which occurs due to the muscle contraction which in turn generates heat
- Raised body temperature and discomfort to the mind

Either the increased heat production or hampered heat loss from the body are the two mechanisms leading to the increased temperature of the body.

[2] Deha Santapa is identified by perception of increased body temperature either by the patient or the physician. This is best appreciated by keeping the dorsal surface of the palm either on the forehead or neck or on the skin of the suffering individual.

[3] वैचित्यमरतिग्लानिर्मनसस्तापलक्षणम।। Ca.Ci. – 3/36

In Manasika Santapa, the person will be presented with abnormal functions of Chitta, restlessness and mental exhaustion.

चिन्त्यं विचार्यमूह्यं च ध्येयं संकल्प्यमेव च। यत्किंचिन्मनसो ज्ञेयं तत्सर्वं ह्यर्थसंज्ञकम्।।
इन्द्रियाभिग्रहः कर्म मनसः स्वस्य निग्रहः। ऊहो विचारश्च, ततः परं बुद्धिः प्रवर्तत।। Ca.Sha. – 1/20,21

In this situation when an individual is having abnormal functions of Manas, the person is unable to have appropriate Chintana, Vicharana, Uha, Dhyeya and Samkalpa or inappropriate thinking process or inappropriate predictability or inappropriate emotions and he is unable to concentrate the activities on any particular Indriya.

[4] Stiffness all over the body parts implies the occurrence of muscle contraction which in turn leads to the increased heat production where in the person may present with chils or rigors in adults and convulsion or seizures in case of infants.

[5] When Vidhi Samprapti of any disease is explained, it implies that various classification of the disease depending upon various parameters. For example, Sharirika and Manasika Jvara are the types based on the affliction of Ashraya of Vyadhi i.e. Sharira (physique) and Manasika (psyche). Each of this type of Jvara need different management approach. If management planned for a type of disease is not appropriate to that particular type of disease, the cure from that particular disease is remote. For example, if an individual is suffering from Manasika Jvara, and no appropriate planning is being to take care of abnormal functioning of Manas, then success in attaining the relief from Manasika Jvara is almost and always remote.

- **8 types:** *Vataja, Pittaja, Kaphaja, Vatapittaja, Pittakaphaja, Vatakaphaja, Sannipataja, Agantuja*

## Nidana of Jvara

मिथ्यातियुक्तैरपि च स्नेहाद्यैः कर्मभिर्नृणाम्।।19।।
विविधादभिघाताच्च रोगोत्थानात् प्रपातः।
श्रमात् क्षयादजीर्णाच्च विपात्सात्म्यर्तुपर्ययात्।।20।।
ओषधीपुष्पगन्धाच्च शोकान्नक्षत्रपीडनात्।
अभिचाराभिशापाभ्यां मनोभूताभिशङ्कया।।21।।
स्त्रीणामपप्रजातानां प्रजातानां तथाहितैः।
स्तन्यावतरणे चैव ज्वरो दोषैः प्रवर्तत।।22।। Su.Ut. – 39/19-22

- **Mithya and Atiyoga of Sneha[6] etc Panchakarma (purificatory procedures)** – improper administration of *Sneha* etc therapeutic procedures.
- **Vividha Abhighata[7]** – different varieties of injury to the body
- **Rogotthana** – as a sequel to other primary disease[8]
- **Prapaka[9]** – mechanism of suppuration occurring in the body

सुचिभिरिव निस्तुद्यते दृश्यत इव पिपीलिकाभि- ) स्ताभिश्च
संसर्प्यत इव छिद्यत इव शस्त्रेण भिद्यत इव शक्तिभिस्ताड्यत इव
दण्डेन पीड्यत इव पा- णिना घट्यत इव च अङ्गुल्या दह्यते पच्यत
इव च अनिक्षाराभ्यामोषचोषपरीदाहाश्च भवन्ति वृश्चिच कविद्ध इव
च स्थानासनशयनेषु न शान्तिमुपैति आध्मातबस्तिरिवाततश्च शोफो
भवति त्वग्वैवर्ण्य ( शोफाभिवृद्धिर्ज्वरदाहपिपासाभक्तारुचिश्च पच्य -
मानलिङ्गम्[10] ; Su.Su. – 17/5

---

[6] When the person is administered with Sneha etc therapeutic procedures, the person will be presented with Agnimandya (reduced digestive fire). If he is exposed to the etiological factors, that will lead to the vitiation of Rasavaha Srotas

- The following verse describes various kinds of discomfort on non following of the appropriate dietary measures (during the state of Ajirna [indigestion] and Adhyashana [when the person consumes the food substances before the digestion of previously consumed Sneha]).

अजीर्णाध्यशनाभ्यां तु मुखशोषाध्मानशूलनिस्तोदपिपासागात्रसादच्छर्यतीसारमूर्च्छाज्वरप्रवाहणामविषादयः (5); Ca.Si. – 12/14-5

The clinical features observed on improper post-Shodhana measures are Mukhashosha (dryness of the mouth), Adhmana (distension of the abdomen), Shula (pricking type of pain), Nistoda (pricking type of pain), Pipasa (thrist), Gatrasada (sluggish movement of body parts), Chardi (vomiting), Atisara (loose stools), Murcha (altered state of consciousness), Jvara (fever), Pravahana (excess straining for defecation) and Amavisha (toxins formed in the Annavaha Srotas. If we analyse the clinical features, most of them are indicative of abnormalities happening in the Mahasrotas or alimentary canal.

Thus, improper pre-Shodhana, Shodhana and post-Shodhana measures may first impair the Agni which is followed by Ama formation which is followed by affliction of Rasa and thus afflicting Rasavaha Srotas. Ca.Ni. – 1/30

[7] तत्राभिघातजो वायुना दुष्टशोणिताधिष्ठानेन .....

The vitiation of Vayu along with impaired Shonita or Rakta Dhatu will be observed in this kind of Jvara.

In this situation, we can predict the possibility of entry of microorganisms to the injured parts which leads to infection of the wound resulting in the occurrence of fever. This can be attributable to the increased activity of WBCs against microorganisms entered through injured areas.

[8] Jvara is also manifested due to the affliction of certain diseases such as Rajayakshma or Raktapitta or Pittaja Kasa or Vidradhi etc where dominance of Pitta can be observed.

Any condition which is leading to either increased heat production or decreased heat loss from the body will lead to the manifestation of fever.

When we speak of heat production, the following factors will lead to increased heat production.

- Basal rate of metabolism of all cells of the body
- Extra rate of metabolism caused by muscular activity including muscle contraction and shivering
- Extra metabolism caused by the effect of thyroxin and other hormones such as growth hormone and testosterone
- Extra metabolism caused by the effect of epinephrine, norepinephrine and sympathetic activity on cells
- Extra metabolism caused by increased chemical activity in the cells themselves
- Extra metabolism needed for the digestion, absorption and storage of food.

When we speak of prevention of heat loss can occur because of generalised peripheral vasoconstriction or cold environment.

[9] When neutrophils and macrophages engulf large number of bacteria and necrotic tissue, essentially all neutrophils and many, and most of the macrophages will die at the area of pus formation. After several days, a cavity is often excavated in the inflamed tissues that contains varying portions of necrotic tissue, dead neutrophils and dead macrophages and tissue fluid. This mixture is known as pus. After the infection has been suppressed, the dead cells and necrotic tissue in the pus gradually autolyze over a period of days, and the end products are eventually absorbed into the surrounding tissues and lymph until most of the evidence of tissue damage is gone.

- When mechanism of suppuration is happening, the following features are seen: pricking type of pain, sensation of bite of ants, sensation of movement of ants all over the body, sensation of injury by weapons, discomfort similar to the discomfort caused by beating with the sticks, burn injury, discomfort similar to scorpion bite, discolouration of the skin, increase of swelling, raised body temperature, burning sensation, thirst, tastelessness.

[10] Pricking type of pain as if multiple needles are used to prick the skin; tingling sensation of the body parts as if ants are moving across the body; tearing type of pain as if sharp instruments are used to tear the body parts; piercing type of pain; pain in the body parts similar to the pain produced by the beating by the stick; squeezing type of pain with palm or fingers or burning type of pain, pain similar to the discomfort produced by pus formation in the body or due to the application of cautery, alkali or burning sensation in one part of the body or all parts of the body; severe pain as if bitten by scorpion; swelling; discolouration of the skin, worsening of the swelling, raised body temperature, burning sensation, thirst, tastelessness are the clinical features observed in Pachyamana Shotha.

- **Shrama** – excessive exertion[11]
- **Kshaya** – *Dhatu Kshaya* i.e. depletion of the body tissues[12]
- **Ajirna** – indigestion[13]
- **Visha** – exposure to toxic substances[14]
- **Satmya Viparyaya** – consumption of unwholesome[15] diet and regimen
- **Rtu Viparyaya** – exposure to seasonal variations[16] or bad climate such as exposure to cold breeze in winter or increased time of exposure cold in cold environment or swimming in extreme cold water etc
- **Oshadhi Pushpa Gandha** – inhalation[17] of pollens or fragrance of flowers of such plants
- **Shoka** – grief[18]
- **Nakshatra Pida** – due to the influence of cosmic force emerged from placement of stars

---

[11] Heatstroke is hyperthermia accompanied by a systemic inflammatory response causing multiple organ dysfunction and often death.

- When the person does more and severe amount of exercise, the person may develop extreme raise of temperature. This condition is called as exertional heatstroke. This type of heatstroke develops abruptly in healthy active people (e.g. athletes, military recruits, factory workers). Intense exertion in a hot environment causes a sudden massive heat load that the body cannot modulate. Rhabdomyolysis is common; renal failure and coagulopathy are somewhat more likely and severe.
- The clinical features observed are global CNS dysfunction, ranging from confusion to delirium, seizures and coma, are the hallmarks of heatstroke.
- Tachycardia, even when the patient is supine, and tachycardia are common.
- Sweating is common.
- Diagnosis is thorough clinical evaluation, including core temperature measurement and laboratory testing for organ dysfunction.

[12] Raised body temperature can occur because of two mechanisms either due to excess generation of the heat (hot environment with humidity and excess metabolism) and reduced heat loss from the body (radiation, evaporation and convection).

- Excess metabolism will alter the physiological functions leading to dehydration.
- Whenever there is raised body temperature, this will lead to increase in peripheral circulation leading excess production of sweat. Normal cutaneous blood flow occurs around 200 to 250 ml/ min at normal temperatures, will increase to 7 to 8 Litres/ min with heat stress, requiring increase in cardiac output. Sweat production from negligible to 2 Litres/ hour, thus, the person will develop rapid dehydration.

[13] After a meal ingested, the metabolic rate increases as a result of the different chemical reactions associated with digestion, absorption and storage of food in the body. This is called thermogenic effect of the body, because these processes require energy and generate heat.

- After a meal that contains large quantity of carbohydrates or fats, the metabolic rate increases about 4%. However, after a high protein meal, the metabolic rate begins raising within an hour, and this lasts for 3 to 12 hours. This is responsible for the small amount of rise of temperature in the body.
- When the person is suffering from indigestion, the body tries to get the nutrition through alternate sources. This is responsible for the alternate source of heat production i.e. skeletal muscle contraction which is usually responsible for the chills and rigors. Skeletal muscle stimulation, normally accounts for 20-30% of the basal metabolic rate. In case of fever, basal metabolic rate will increase.

[14] Nature of toxic substances and exposure of the part of the body exposed to toxic substances decide the nature of clinical presentation. Certain drugs such as caffeine, cocaine, amphetamines are leading to the manifestation of fever.
When an individual is exposed to toxic substances, there will be release of histamine released which is leading to the vasodilatation of the exposed area which in turn leads to increased permeability of the capillaries. As there is increased vascularity in the exposed area, the person may have local raise of body temperature.

[15] This refers to the unwholesome diet pattern. Let us take an example, if a South Indian person going to northern part of India, he will have difficulty in consuming substances prepared there. Most of the dishes of North India will have mustard oil and South Indian will have habituation of consumption of food prepared out of coconut oil. That is why, the person from South India finds difficulty in digesting the food which is prepared from mustard oil.
This may release the histamine which is leading to the local permeability of the blood to increase in the alimentary canal, stomach in particular.

[16] Seasonal variations are of two categories: extreme hot environment and extreme cold environment. Apart from these two extremes, the variable environmental conditions in between seasonal extremes may be present. In case of extreme hot environment, excess heat is not disposed to the outside as the heat in the outside environment is extremely high; in case of extreme cold environment, heat is not expelled out as the environment is very cold. Abnormal variations may lead to variable loss of heat from the body, thus the person may have raised body temperature in any of the above mentioned situations.

[17] This may lead to the respiratory allergic manifestation leading to inflammatory changes and lead to raise of temperature which is one of the essential sign of inflammation.

[18] When an individual is in grief, the first and foremost effect is seen in Amygdala which is further controlled by hypothalamus. The effects of amygdala on the body are

- Increase or decrease in heart rate
- Increase or decrease in gastrotintestinal secretion and motility
- Defaecation or micturition
- Pupillary dilatation
- Piloerection
- Secretion of various anterior pituitary hormones

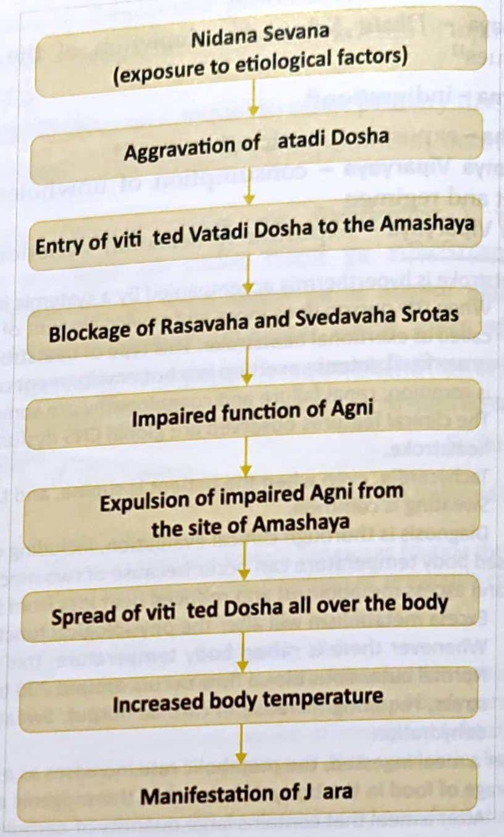
Increased cellular activity will lead to increased heat production and decreased cellular activity may lead to decreased heat loss from the body. in both occasions, the person may have feverishness.

- **Abhichara** – bad deeds[19]
- **Abhishapa** – curse or wrath by elders or teachers[20]
- **Manobhutabhishankaya** – people who are psychologically weak individuals
- **Strinam Apaprajatanam and Prajatanam Ahita Bhojana** – improper delivery[21] in pregnant women and in women indulging in improper diet[22] and regimen[23] who gave normal birth to healthy baby
- **Stanyavarana**[24] – in post natal period, when proper aseptic precautions are not taken during breast feeding

## Samprapti[25] of Jvara

दोषाः प्रकुपिताः खेषु कालेषु स्वैः प्रकोपणैः॥15॥
व्याप्य देहमशेषेण ज्वरमापादयन्ति हि।
दुष्टाः खहेतुभिर्दोषाः प्राप्यामाशयमृष्मणा॥ 16॥
सहिताश्च समागत्य रसखेदप्रवाहिणाम्।
स्त्रोतसां मार्गमावृत्य मन्दीकृत्य हुताशनम्॥17॥
निरस्य वहिरुपमाणं पक्तिस्थानाच्च केवलम्।
शरीरं समभिव्याप्य खकालेषु ज्वरागमम्॥18॥
जनयन्त्यथ वृद्धिं च स्ववर्ण च त्वगादिषु। Su.Ut. – 39/15-19
मिथ्याहारविहाराभ्यां दोषा ह्यामाशयाश्रयाः।
वहिर्निरस्य कोष्ठानि ज्वरदाः स्यू रसानुगाः॥2॥ Ma.Ni. – 2/2

- Due to the exposure to either single or multiple aetiological factors, *Dosha* gets vitiated in *Amashaya*
- Formation of *Ama* in the *Koshtha*
- This *Ama* will lead to the displacement of *Agni* from *Koshtha* to *Shakha*
- *Ama* will block the opening of *Rasavaha Srotas* so that *Agni* is not returned to *Koshtha*.
- Due to displacement of *Pitta* from *Koshtha* to *Shakha*, there will be increased temperature felt in patient by touching the skin of the patient.
- Due to the absence of *Agni* in *Mahasrotas*, the person will be presented with loss of appetite and indigestion.


Nidana Sevana (exposure to etiological factors)
Aggravation of Vatadi Dosha
Entry of vitiated Vatadi Dosha to the Amashaya
Blockage of Rasavaha and Svedavaha Srotas
Impaired function of Agni
Expulsion of impaired Agni from the site of Amashaya
Spread of vitiated Dosha all over the body
Increased body temperature
Manifestation of Jvara

### Samprapti Ghataka

- **Dosha :** *Pitta* dominant *Tridosha*
- **Dushya:** *Rasa*
- **Srotas:** *Rasavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Tvak* or *Shakha*
- **Adhishthana :** *Sharirika*

---

GK

[19] This is responsible for the manifestation of Abhicharaja Jvara.

[20] This is responsible for the manifestation of Abhicharaja Jvara.

[21] This can be attributable to the improper wound care or attributable to abnormal measures followed during puerperium.

[22] Consumption of black gram items etc may lead to Kapha vitiation which in turn lead to the formation of pus etc. Black gram (Masha) is having Madhura Rasa, Guru, Snigdha quality, Shita Virya and Madhura Vipaka, thus the person will have maximum Kapha Dosha vitiation.

[23] Measures which lead to the increase in intrabdominal pressure such as squatting posture or excess straining for defaecation or vomiting or coughing etc

[24] When the woman is in child bearing age group, particularly during lactation or there is inadequate treatment of acute mastitis, the lady may present with pain in the breast, throbbing type of pain, fever. This may occur due to entry of bacteria either through blood stream or through lactiferous ducts.

[25] When an individual is having inappropriate diet pattern, that will cause the accumulation of improper digested materials in the Amashaya (stomach). This will be in the macromolecular or intermediate molecular form. This will lead to the infective and inflammatory changes in the stomach. This will be responsible for gastric mucosal damage. Because of the damage to gastric mucosa, macromolecular or intermediate molecules will get into blood circulation either via portal circulation or via lymphatics, macromolecules and intermediate molecules will enter the blood stream. The whole mechanism will lead to poor gastrointestinal function in due course of time.
- Whenever, the person is suffering from Jvara, first and foremost, the blood circulation to the alimentary canal is going to get decreased. This in turn will lead to the increased blood circulation to the area of pathological events taking place inside the human body either it may be intravascular or interstitial or intracellular compartment.

- **Agni :** *Jatharagnimandya*
- **Ama:** *Ama* due to poor functioning of *Jatharagni*
- **Rogamarga** : *Abhyantara* and *Bahya*
- **Roga Svabhava :** *Ashukari*

## Purvarupa

श्रमोऽरतिर्विवर्णत्वं वैरस्यं नयनप्लवः।
इच्छाद्वेषौ मुहुश्चापि शीतवातातपादिषु॥25॥
जृम्भाङ्गमर्दो गुरुता रोमहर्षोऽरुचिस्तमः।
अहर्षश्च शीतं च भवत्युत्पत्स्यति ज्वरे॥26॥
सामान्यतो विशेषात्तु जृम्भाऽत्यर्थ समीरणात्।
पित्तान्नयनयोर्दाहः कफान्नान्नाभिनन्दनम्॥27॥
आलस्यं नयने साले जृम्भणं गौरवं क्रमः।
ज्वलनातपवाय्वम्बुभक्तिद्वेषावनिश्चितौ॥28॥ Su.Ut. – 39/25-27
अविपाकास्यवैरस्ये हानिश्च बलवर्णयोः।
शीलवैकृतमल्पं च ज्वरलक्षणमग्रजम्॥29॥ Ca.Ci. – 3/28-29

- *Shrama* [26]: fatigue by doing activities
- *Arati*[27]: restlessness
- *Vivarnatva*[28]: discolouration
- *Vairasya*[29]: abnormal taste perception
- *Nayana Plava*[30]: tear production
- *Shita Vata Atapadishu Muhu Iccha Dvesha*[31]: frequent liking and disliking towards cold wind and sunlight
- *Jrimbha*[32]: excess yawning
- *Angamarda*[33]: bodyache
- *Guruta*[34]: heaviness of the body
- *Romaharsha*[35]: horripulation

---

[26] This presenting complaint is attributable to poor blood circulation to the skeletal muscles secondary to peripheral vaso constriction. This will result in either excess carbonic acid production or lactic acid formation which are responsible for muscular fatigue.

[27] This is attributable to hyperpyrexia where the temperature is more than 104° C or when the person is showing rapid development of fever. This may be associated with chills or rigor.

[28] वर्ण मेदेन ग्लानिहर्षरौक्ष्यस्नेहा व्याख्याताः ।। Ca.I. – 1/10

The term Varna refers not only related to discolouration, it also encompasses abnormal texture of the skin too. Hence, Vaivarnya can be considered as not only abnormal discolouration, it also covers abnormal texture of the skin such as dryness of the skin or oedema of the skin or subcutaneous tissue etc.

In the present context, Vaivarnya is attributable to abnormal increase of blood circulation to the affected part which is leading to redness of the body parts, thereby leading to the increase of local rise of temperature. Depending upon the organ afflicted, the person may have yellowish discolouration (hepatitis) or abnormal oedema formation (local inflammation) or skin turgor loss secondary to extreme fluid loss (hypovolemia) etc.

[29] This is attributable to activation of sympathetic nervous system which in turn reduces the secretions in the whole alimentary canal. In this occasion, there will be poor salivary secretions which is essential for the proper taste perception.

[30] This is attributable to the abnormal respiratory function. In this occasion, the person will have blockage of the nasolacrimal duct, thus there will be reverse movement of lachrymal secretions, thus the patient will have excess tear production.

[31] This is attributable to the peripheral vaso constriction which occurs as a sequel to body's response to pyrogen which leads to two mechanisms in the body i.e. increased heat production and decreased heat loss from the body. When there is peripheral vaso dilatation, the person may have profuse sweating, the person likely to have aversion to the hot atmosphere. Thus, when the individual is having peripheral vasoconstriction, he will have frequent liking towards hot substances and when he is having peripheral dilatation, he will have liking towards cold substances.

As far as Ayurveda fundamentals are concerned, there will be increase of Shita quality in the body, thus, it indirectly responsible for the liking of Ushna quality substances. When there is decrease of Shita quality in the body, then opposite mechanism happens i.e. aversion to the Ushna substances.

[32] This premonitory symptom is seen in the patient of Vataja Jvara. Yawning is an activity consists of wide opening of mouth with maximal widening of jaw, together with a long and deep inhalation through mouth an nose, followed by slow expiration, associated with a feeling of comfort. The average duration of yawn is 5 seconds. Additionally, stretching of the limbs also frequently accompanies yawning in humans. Following hypotheses can be put forth in understanding the concept of yawning.

- When an individual does yawning, that will lead to the shift of temperature from the core of the head region to the periphery of head and neck.
- Yawning relieves the pain in the ears by opening of eustachian tube which has a connection with middle ear by removing the blockage present in the tube.
- Yawning is triggered when blood or brain oxygenation is insufficient, when O2 level is decreased and CO2 is increased. Yawning removes CO2 from the lungs and increases the O2 circulation in the brain.

[33] This symptom is attributable myalgia or shivering which manifests in an individual who has early manifestation of fever.

[34] This is attributable to the dominance of Ama in the body. This can be either related to alimentary canal or any part of the body. in this occasion, the macromolecules or intermediate molecules will move slowly in the alimentary canal, thus the person may have heaviness of the abdomen.

When there is pyrogen in any part of the body, that will be responsible for slower movement of the blood in the capillaries of the area of affliction, this is termed as sludging of blood. This is responsible for the heaviness of the body parts.

[35] This is also termed as piloerection i.e. hairs standing on end. Sympathetic stimulation causes the arrector pili muscles attached to the hair follicles to contract, which brings the hairs to upright stance. This mechanism occurs when the body is too cold. This occurs along with skin vaso constriction and heat production in the body.

- *Aruchi*[36]: tastelessness
- *Tama*[37]: darkness in front of the eyes
- *Apraharsha*: dissatisfaction
- *Shita*[38]: feeling of coldness
- *Alasya*[39]: laziness
- *Sasra Nayana*[40]: reddish discolouration of the eyes
- *Klama*[41]: fatigue without doing activities
- *Jvalana*[42]: burning sensation
- *Vayu Ambu Anischita Bhakti Dvesha*[43]: affinity and aversion towards exposure to air and consumption of water infrequently
- *Avipaka*[44]: indigestion
- *Balahani*[45]: reduced[46] or loss of strength
- *Varna*[47] *hani*: loss of complexion
- *Shila Vikriti*[48]: changes in behaviour

**Bhedа of Jvara:**

**2 types:** *Sharirika* and *Manasika*

**शारीरो जायते पूर्व देहे, मनसि मानसः।** Ca.Ci. – 3/36

- In *Sharirika Jvara*, first there will be physical symptoms, followed by mental dysfunction.

**ज्वरप्रत्यात्मिकं लिङ्गं संतापो देहमानसः।** Ca.Ci. – 3/31

In *Sharirika Jvara*, the person will have raised body temperature. This is observable by the physician. This is followed by dysfunction of psyche.

- In case of *Manasika Jvara*, first there will be mental symptoms, followed by physical dysfunction.

**वैचित्त्यमरतिग्लानिर्मनसस्तापलक्षणम्॥** Ca.Ci. – 3/36

In *Manasika Jvara*, the person will be presented with abnormal functions of *Chitta*, restlessness and mental exhaustion. These *Lakshana* are followed by physical symptoms. This is typical of *Manasika Jvara*.

**2 types:** *Saumya* and *Agneya Jvara*[49]

**वातपित्तात्मकः शीतमुष्णं वातकफात्मकः॥37॥**
**इच्छत्युभयमेतत्तु ज्वरो व्यामिश्रलक्षणः।** Ca.Ci. – 3/37-38

- In case of *Vatakaphaja Jvara*, the person will be having

---

36 This symptom is attributable to sympathetic nervous system stimulation which in turn leads to reduced secretions of alimentary canal including oral cavity.

37 This symptom is attributable to hypovolemia occurs in a patient of fever.

38 This is attributable to peripheral vaso constriction.

39 This is attributable to the presence of Ama in the body. When an individual is having the entry of pathogen in the body, there will be slow circulation in the body which is called sludging of blood. When there is poor circulation in any part of the body, the person will have heaviness of the body and this may eventually lead to laziness of the individual.

40 This is attributable to allergic exposure to the eyes and thus causing inflammatory reaction in the eyes which is responsible for local rise of temperature. This indicates the dominance of Pitta in the body.

41 This symptom is attributable to poor blood circulation to the skeletal muscles owing to peripheral vaso constriction.

42 This is attributable to the increase of Pitta Dosha in the body. This may be probably due to the increased blood circulation to the periphery and this occurs when an individual is having increased temperature inside the body. This may lead to excess perspiration which may increase from normal 400 ml/ 24 hours to 2 litres/ hour. This may lead to the appearance of burning sensation of the body.

43 This may be attributable to infrequent demand and supply of water to the body. This may indirectly suggest inadequate supply of water owing to infrequent loss of water from the body.

44 This is attributable to the sympathetic nervous system activation and this is leading to the poor secretion in the alimentary canal and thus, the person may have indigestion.

45 This is attributable to poor metabolic activity in the body. Because of poor metabolism, the person may have poor absorption of glucose, water and electrolytes such as sodium, potassium, calcium ions which are the major cuases of reduced strength in the body.

46 This is attributable to poor metabolic activity in the body. Because of poor metabolism, the person may have poor absorption of glucose, water and electrolytes such as sodium, potassium, calcium ions which are the major cuases of reduced strength in the body.

47 वर्णभेदेन ग्लानिहर्षपरीक्ष्यस्नेहा व्याख्याताः।।10।।
वर्गमेदेनेति यथा वर्णविभागेन रिष्ठं, तथा ग्लान्यादिनिभा गेनापीत्यर्थः।
इपे इहोपचयो हेयः, मानसहर्षस्पेह चानुपा चिकारेऽसङ्गतत्वात्।।10।।
Ca.I. - /10, along with Chakrapani commentary
वर्णशब्देन च वर्णसहचरिता- बक्षुर्भाया रौक्ष्यादयोऽपि गृह्यन्तेः। Chakra, Ca.I.: 1/3
The term Varna refers to the abnormal texture of the skin such as dryness which is perceivable by eyes. Thus, if the person is suffering from early manifestation of fever, there will be dryness of the skin due to the poor peripheral circulation of the blood.

48 Whenever the internal body temperature becomes too high, signals from the temperature controlling areas in the brain give the person a psychic sensation of being overheated. Conversely, whenever the body becomes too cold, signals from the skin and probably also from deep receptors elicit the feeling of cold discomfort. Therefore, the person makes appropriate environmental adjustments to reestablish the comfort, such as moving into a heated room or wearing well insulated clothing in freezing weather.

49 This type of classification of Jvara is made based on the dominance of Shita and Ushna Virya in the body.

- As per the current physiological understanding, raised body temperature is possible because of two pathological mechanisms – increased heat production or reduced heat loss from the body.
- Whenever, there is increased heat generation from the body, it may be associated with peripheral vasoconstriction and muscle twitchings which is identified as chills or rigors. This is attributable to Ushnabhiprayaja Jvara.
- When there is hampered heat loss from the body, it implies presence of more heat inside the body. In this occasion, the person desirous of having more frequent or continuous contact with cold substances. This is attributable to Shitabhiprayaja Jvara.

the symptoms related to increase of *Shita Guna* in the body. In such situation, the person will be presented with liking towards consumption of hot substances. That is why, this type of *Jvara* is called *Saumya Jvara* or *Ushnabhiprayaja Jvara*.

- In case of *Vatapittaja Jvara*, the person will be having the symptoms related to increase of *Ushna Guna* in the body. In such situation, the person will be having liking towards consumption of cold substances. That is why, this type of *Jvara* is called *Agneya Jvara* or *Shitabhiprayaja Jvara*.

**2 types:** *Antarvega* and *Bahirvega Jvara*

अन्तर्दाहोऽधिकस्तृष्णा प्रलापः श्वसनं भ्रमः॥3 9॥
सन्ध्यस्थिशूलमस्वेदो दोषवचविनिग्रहः।
अन्तर्वेगस्य लिङ्गानि ज्वरस्यैतानि लक्षयेत्॥4 0॥
संतापोऽभ्यधिको बाह्यस्तृष्णादीनां च मार्दवम्।
बहिर्वेगस्य लिङ्गानि सुखसाध्यत्वमेव च॥4 1॥ Ca.Ci. – 3/39-41

- **Antarvega Jvara**[50]: In case of *Antarvega Jvara*, the person will be presented with burning sensation, excessive thirst, irrelevant speech, breathlessness, giddiness, pricking type of pain in the joints and bones, absence of sweating, absence of movement of vitiated *Dosha* from the body, constipation. This type of *Jvara* is difficult to cure. This is because the *Lakshana* are not easily observable by the physician.

- **Bahirvega Jvara**[51]: In *Bahirvega Jvara*, the person will be presented with raised body temperature in the periphery, the symptoms such as thirst etc will become milder. This type of *Jvara* is considered to be easily curable as the *Lakshana* are clearly identifiable.

**2 types:** *Prakrita* and *Vaikrita Jvara:*

प्राकृतः सुखसाध्यस्तु वसन्तशरदुद्भवः। Ca.Ci. – 3/42
कालप्रकृतिमुद्दिश्य निर्दिष्टः प्राकृतो ज्वरः॥4 8॥
प्रायेणानिलजो दुःखः कालेष्वन्येषु वैकृतः। Ca.Ci. – 3/48-49

- **Prakrita Jvara:**[52] The term *Prakrita Jvara* refers to the aggravation of symptoms of *Jvara* in specific time and specific *Prakriti* individual. For example, aggravation of fever indicating the dominance of *Kapha Dosha* in the body in *Kapha Prakriti* individual in the morning time or in *Vasanta Rtu* is *Prakrita Kaphaja Jvara*. *Pitta* dominant *Jvara* occurring *Pitta Prakriti* individual in *Sharat Rtu* is considered as *Prakrita Pittaja Jvara*. *Vataja Jvara* in *Vata Prakriti* individual in *Varsha Rtu* is considered as *Prakrita Vataja Jvara*.

- **Vaikrita Jvara**[53]: Manifestation of *Kaphaja Jvara* in the season other than *Vasanta Rtu* is termed as *Vaikrita Kaphaja Jvara*. Manifestation of *Pittaja Jvara* in the season other than *Sharat Rtu* is termed as *Vaikrita Pittaja Jvara*. Manifestation of *Vataja Jvara* in the season other than *Varsha Rtu* is termed as *Vaikrita Vataja Jvara*.

**2 types:** *Sadhya* and *Asadhya Jvara:*

बलवत्स्वल्पदोषेषु ज्वरः साध्योऽनुपद्रवः। Ca.Ci. – 3/49

- **Sadhya Jvara:** when the person is having following situations, then such *Jvara* is considered to be *Sadhya* (curable). This indicates the mild[54] vitiation of *Dosha*, duration of exposure of etiological factors for a shorter time period and involvement of *Dhatu* in disease process is minimum.
  - ➤ If the *Rogibala* is very strong than *Rogabala*
  - ➤ If the vitiation of *Dosha* in the individual is mild in nature
  - ➤ If the *Jvara* is not associated with any *Upadrava* (complications)

- **Asadhya Jvara:** This is considered to be incurable type of *Jvara*. The following are the situations, where this type of *Jvara* is observed.

हेतुभिर्बहुभिर्जातो बलिभिर्बहुलक्षणः॥5 0॥
ज्वरः प्राणान्तकृद्यश्च शीघ्रमिन्द्रियनाशनः। Ca.Ci. – 3/50
सप्ताहाद्वा दशाहाद्वा द्वादशाहात्तथैव च॥5 1॥
सप्रलापभ्रमश्वासस्तीक्ष्णो हन्याज्ज्वरो नरम्। Ca.Ci. – 3/51
ज्वरः क्षीणस्य शूनस्य गम्भीरो घेरात्रिकः॥5 2॥
असाध्यो बलवान् यश्च केशसीमन्तकृज्ज्वरः। Ca.Ci. – 3/52

- If the manifestation of *Jvara* is occurring due to exposure to multiple aetiological factors. For example, when an individual is exposed to two etiological factors such as *Prapaka* (suppuration) stage and *Ajirna* (indigestion) stage, we can observe the dominance of *Pitta* and *Kapha Dosha* at a particular time, that means the physician has to manage the vitiations of two *Dosha*, the management of these *Dosha* are entirely different. In that situation, management of the disease in that individual will be difficult.

---

[50] In Antarvega Jvara, there will be peripheral vaso constriction. Because of this, the person will be having cold sensation from the exterior and core temperature is maintained or raised. As there is peripheral vaso constriction, the person will have absence of sweating. As there is sympathetic nervous stimulation, the person will have thirst, irrelevant speech and constipation.

[51] In Bahirvega Jvara, there will be peripheral vaso dilatation. That is why the person will have excess amount of sweating which leads to the transfer of excess amount of heat from the body to the exterior. Due to the relaxation of sympathetic nervous system, the person will have mild appearance of thirst and mild appearance of other Lakshana of Antarvega Jvara.

[52] Prakrita Jvara manifested due to the vitiation of Kapha and Pitta Dosha is easily curable. Prakrita Vataja Jvara is difficult to cure. The reason is in case of Jvara, the line of treatment is Langhana or Apatarpana (measures which will help in the lightness of the body). This measure will lead to the vitiation of Vata Dosha, but pacify vitiated Kapha or Pitta Dosha.

[53] Vaikrita Jvara is invariably difficult to cure as the nature of vitiated Dosha, Prakriti of the individual and season in which symptoms of Jvara are not seen in association with one another.

[54] Let us take the example of two patients suffering from Kaphaja Jvara. First person is having the history of consumption of curds of 100 ml since 3 days and second person is having the history of consumption of curds of 200 ml for 4 days and grapes of 50 gms since 2 days. Here, the first person is having mild vitiation of Kapha Dosha and second person is having moderate vitiation of Kapha Dosha.

- If *Rogabala* (virulence of disease) of the individual is more potent than *Rogibala* (physical strength of the individual). For example, *Svedavarodha* (absence of sweating) in one part of the body and duration of the presenting complaint is more than 5 days. In another patient presented with *Svedavarodha* (absence of sweating) all over the body and the duration of the symptoms is more than 7 days. As far as virulence of the disease is concerned, in the former individual, the person is having mild *Rogabala* and in the latter individual, the person is having more *Rogabala* than the strength of the person himself. In the latter case, the manifestation of *Jvara* is incurable when compared to former individual.
- If the person is presented with multiple *Lakshana* (symptoms). For example, if the person is having all *Lakshana* mentioned in *Jvara*, *Svedavarodha* (absence of sweating), *Santapa* (raised body temperature) and *Sarvanga Grahana* (stiffness of body parts), then such disease is considered to be incurable in nature.
- If the person is presented with life threatening symptoms, for example if the person is presented with rapid manifestation of *Trishna* (thirst) or *Moha* (confusion) indicate progression of the illness into rapid *Udaka Kshaya* (hypovolemia[55]). If proper management of this state is not being taken, then it will lead to poor prognosis.
- If the person is presented with rapid deterioration of functions of *Indriya*[56]. In this situation, there will be redistribution of the fluid from the periphery to the core of the body and this is secondary to hypovolemia.
- If the person is suffering from fever from 7 days in *Vataja Jvara*, 10 days in *Pittaja Jvara* and 12 days in *Kaphaja Jvara* and associated with irrelevant speech in *Vataja Jvara*, giddiness in *Pittaja Jvara* and breathlessness in *Kaphaja Jvara*.
- If the person is presented with *Dhatu Kshaya* (depletion of body tissues). In this condition, the person will have hypovolemia.
- If the person is having the swelling (localised or generalised). In case of generalised swelling in the individual, the person will have reduced fluid compartment in intravascular compartment and more fluid accumulation in the interstitial compartment. This implies hypovolemia[57].
- If there is involvement of deeper body tissues (*Dhatu*). This will lead to more depletion of body tissues and this is leading to hypovolemia.
- If the person is presented with symptoms which is observed from longer duration[58] or persist for longer duration in night time
- If the person is presented with matted hair[59] appearance

## Ama, Pachyamana and Nirama Jvara Lakshana

**Ama Jvara:**

अरुचिश्चाविपाकश्च गुरुत्वमुदरस्य च॥133॥
हृदयस्थाविशुद्धिश्च तन्द्रा चालस्यमेव च।
ज्वरोऽविसर्गी बलवान् दोषाणामप्रवर्तनम्॥134॥
लालाप्रसेको हल्लासः क्षुनाशो विरंसं मुखम्।
स्तब्धसुप्तगुरुत्वं च गात्राणां बहुमूत्रता॥135॥
न विड् जीर्णा न च ग्लानिर्ज्वरस्यामस्य लक्षणम्। Ca.Ci. – 3/133-136

ज्वरोपद्रवतीक्ष्णत्वमग्लानिर्बहुमूत्रता।
न प्रवृत्तिर्न विड् जीर्णा न क्षुत्सामज्वराकृतिः॥54॥ A.Hr.Ni. – 2/54

---

[55] Normally, 400 ml of sweat is formed in 24 hours, but when an individual is having high degree of fever, there will be loss of fluid of about 2 litres/ hour. This mechanism is responsible for rapid development of thirst and confusion secondary to reduced hypoperfusion of brain. In this situation, along with water, even sodium ions will be lost. It indicates rapid replenishment of fluid and sodium ions is necessary.

[56] Let us take the example of Rasanendriya (tongue). When the person is suffering from fever, first of all there will be loss of fluid and electrolytes, sodium in particular. In this situation, the tongue will receive minimum blood supply to maintain the blood supply to the heart and brain which are the two main organs need continuous blood supply. Because of the poor salivary secretion in the oral cavity, the person may have poor taste perception. In the same way, one has to think for Chakshurindirya, Sparshanendriya, Ghranendriya, Shrotrendriya also. The same can be applied to the Karmendriya (Vak, Pada, Pani, Payu and Upastha) as well.

[57] In this situation, the person will have reduced protein content in the intravascular compartment and increased protein content in the interstitial compartment.

[58] Whenever an individual is suffering from fever for longer duration, the following points can be deduced:
- Increased basal rate of metabolism of all cells of the body
- Extra rate of metabolism caused by muscular activity including muscle contractions caused by shivering
- Extra metabolism caused by the effect of thyroxine on the cells
- Extra metabolism caused by the effect of epinephrine, norepinephrine and sympathetic stimulation on cells
- Extra metabolism caused by increased chemical activity in the cells themselves, especially when the cell temperature increases
- Extra metabolism needed for digestion, absorption and storage of food
- Slowness in the conduction of heat to the periphery from the core of the body
- Slowness in the transfer of heat from the skin to the exterior

Because of above said reasons, the person may have emaciation of the body.

[59] When an individual develops matted hair appearance, it indicates increased perspiration in the head too. This is responsible for the dryness of the scalp region and in turn responsible for matted appearance of hair.

The term *Ama Jvara*[60] refers to the state of *Jvara* where vitiation of *Dosha* observed in *Amashaya* of *Mahasrotas*. This is observed in the initial phase of *Jvara* manifestation.

- **Aruchi**[61] – tastelessness
- **Avipaka**[62] – improper digestion
- **Udarasya Gurutva**[63] – heaviness of the abdominal region
- **Hridayasya Avishuddhi**[64] – discomfort in the chest
- **Tandra** – drowsiness
- **Alasya** – laziness
- **Jvara which is Avisargi**[65] – continuous fever
- **Balavan** – Rogabala is more
- **Doshanam Apravartana**[66] – no expulsion of vitiated *Dosha* from the body such as absence of vomiting or diarrhoea or expectoration etc.
- **Lala Praseka**[67] – excess salivation
- **Hrillasa**[68] – nausea
- **Kshudha Nasha** – loss of appetite[69]
- **Virasa Mukha** – abnormal taste perception
- **Stabdhata, Suptata and Gurutva of Gatra** – stiffness, numbness and heaviness of the body parts
- **Bahumutrata** – excess formation of urine[70]
- **Na Vit** – no formation of faecal matter or constipation[71]
- **Na Jirna** – absence of digestion[72]
- **Glani**[73] – exhaustion

### Pachyamana Jvara:

ज्वरवेगोऽधिकस्तृष्णा प्रलापः श्वसनं भ्रमः॥136॥
मलप्रवृत्तिरुत्क्लेशः पच्यमानस्य लक्षणम्। Ca.Ci. – 3/136-137

---

[60] The Lakshana such as Aruchi, Avipaka, Udarasya Gurutva, Hridayasya Avishuddhi, Tandra and Alasya can be attributable to the presence of Ama in the Mahasrotas, that too Amashaya in particular.

[61] This can be attributable to the over stimulation of parasympathetic nervous system. This is responsible for the over secretion of salivary secretion. When there is activation of sympathetic nervous system, the person may have tastelessness because of poor salivary secretion which is required for tastebuds to function.

[62] Avipaka or indigestion can be attributable to either poor gastric secretion or because of poor peristaltic movements or because of poor gastric emptying.

[63] This is attributable to the excess presence of macromolecules in the stomach, duodenum, small intestine or large intestine. This occurs as a result of decreased digestive enzymes secretion in the alimentary canal.

[64] This is attributable to the presence of macromolecules in the stomach and poor peristaltic movements leading to the delay in emptying of the stomach.

[65] When there is continuous fever in an individual, it indicates continuation of pathological events of fever inside the body i.e. either increased heat production or hampered heat loss from the body.

[66] When there is over stimulation of parasympathetic nervous system which is associated with inhibitory signals to the sympathetic nerve fibres supplying the stomach and signals from the duodenum are resulting in delaying in the emptying of pyloric antrum. This is further responsible for the poor peristaltic movements in the alimentary canal.

[67] This is attributable to the over activation of parasympathetic nervous system. When there is activation of parasympathetic nervous system on salivary glands, there will be excess salivation. In the stomach and small intestine, there will be excess mucus secretion thus, the person may have loss of appetite.

[68] The presence of this complaint indicates the distension of either stomach or duodenum. This may occur as a result of delayed pyloric emptying or poor peristaltic movements of the stomach secondary to poor conversion of macromolecules to intermediate to micromolecules.

[69] This is attributable to increase in secretion which in turn responsible for the deactivation of pepsinogen which occurs as a result of poor hydrochloric acid secretion. In this situation, if an individual consumes food, he will have poor digestion because of poor activation of pepsinogen.

[70] When the person is having Ama Jvara, following mechanisms occur in the body.

1. Poor blood circulation in the alimentary canal
2. Poor peripheral circulation secondary to peripheral vasoconstriction
3. There will be raised body temperature in the body secondary to either increased heat production in the body or hampered heat loss from the body
4. As the time passes, the above mechanisms will lead to heat loss either urine and breath. Thus, the person may develop excess micturition from the body.

[71] This is attributable to the stimulation of sympathetic nervous system. When there is activation of sympathetic nervous system, closure of sphincters in the alimentary canal i.e. upper oesophageal sphincter, lower oesophageal sphincter, pyloric sphincter, ileocaecal junction and anal sphincters occur. Thus constipation is one of the symptoms observed in the patient who has the history of recent fever.

[72] This is attributable to the stimulation of sympathetic nervous system. When there is activation of sympathetic nervous system, along with closure of sphincters, reduced secretion in the alimentary canal occur. This will lead to the presenting complaint of indigestion. This is the status of Agnimandya and Ajirna in the person suffering from Jvara.

[73] When an individual is presented with exhaustion, it implies that the individual is having poor digestive secretion. The above said presenting complaint can occur because of

1. Poor digestive function owing to poor carbohydrate absorption
2. Increased formation of metabolic acidosis (ketoacidosis and lactic acidosis) secondary to poor absorption
3. This may be associated with increased muscular metabolism (chills or rigor)

Because pf above said reasons, person may have inadequate nutrients to the each and every cell of the body. Thus, the person may have exhaustion

ज्वरवेगोऽधिकं तृष्णा प्रलापः श्वसनं भ्रमः।
मलप्रवृत्तिरुत्क्लेशः पच्यमानस्य लक्षणम्॥55॥ A.Hr.Ni. – 2/55

In case of *Pachyamana Jvara*, the *Samprapti* of the disease is little bit prolonged and the *Lakshana* of the disease are comparatively severe than *Ama Jvara*. All the *Lakshana* mentioned in the following may not be visible in suffering individual, depending upon the dominance of *Dosha* responsible for the manifestation of the symptoms, fewer symptoms can be manifested. These are manifested after the appearance of *Ama Jvara*, can be observed before the appearance of *Nirama Jvara*.

- **Adhika Trishna**[74] – excessive thrist
- **Pralapa**[75] – irrelevant speech
- **Shvasana**[76] – breathlessness
- **Bhrama**[77] – giddiness
- **Mala Pravritti**[78] – passage of stools
- **Utklesha**[79] – nausea or vomiting

**Nirama Jvara:**

भुत् क्षामता लघुत्वं च गात्राणां ज्वरमार्दवम्॥137॥ Ca.Ci. – 3/137-138
दोषप्रवृत्तिरष्टाहो निरामज्वरलक्षणम्। A.Hr.Ni. – 2/56
जीर्णतोमविपर्यासात्सप्तरात्रं च लङ्घनात्।

The term *Nirama Jvara* indicates the stage of *Jvara* where there is decrease of *Amatva* in the body. This is indicative of restoration of the disease process in the body.

- **Kshut Kshamata** – appetite[80]
- **Laghutva**[81] – lightness of the body
- **Gatra Mardava**[82] – softness of the body parts
- **Jvara Mardava** – symptoms indicating the recovery from the fever
- **Dosha Pravritti**[83] – expulsion of vitiated *Dosha* from the body i.e. vomiting, *diarrhoea* or expectoration etc
- **Ashta Aha** – 8th day of appearance of fever. This term refers to even in the absence of *Kshut Kshamata* (appearance of appetite), when the duration of *Jvara* crosses 8th day in appearance, we have to consider such *Jvara* as *Nirama Jvara.*

**Vatabalasaka Jvara:** The term *Vatabalasaka* is comprised of two words. They are *Vata* (*Vata* dominant) and *Balasa* (*Kapha* dominant). The clinical features of *Vatabalasaka Jvara* are

नियं मन्दज्वरो रुक्षः शुमकस्तेन सीदति।
स्तष्याङ्गः श्रेप्मभूयिष्ठो नरो वातपडालकी॥40॥ Ma.Ni. – 2/40

- **Nitya Manda Jvara**[84] – slight raise of body temperature
- **Ruksha**[85] – increased dryness of the body or body parts or skin
- **Shunaka**[86] – swelling either localised or generalised
- **Stabdhanga**[87] – stiffness of the body or body parts

---

GK

[74] This is attributable to further progression of pathological events in the diseased individual. This occurs as a result of hypovolemia develops. When we see the textbooks of physiology, normally, 400 ml of sweat is formed in 24 hours, but when an individual is having fever, the amount of sweat formed may increase upto 2 litres/ hour. This indicates the rapid development of dehydration, which exhibits as a symptom of thirst.

[75] This is attributable to dehydration which may be responsible for either poor cerebral circulation or electrolyte imbalances, hyponatremia in particular. Along with loss of 2 litres of water per hour, there will be loss of sodium ions also. It is being said that in an unacclimatised person, the person loses 15 to 30 gms of sodium salts each day for first few days.

[76] This can be attributable to the person is having heat loss from the expired air. Whenever, the individual is having poor heat loss at the beginning, this indicates peripheral vasoconstriction, shivering and increased metabolism from different parts of the body or there will be action of WBCs on pathogens. When the thermoregulatory setpoint is reached, this may be responsible for either increased sweat production or increased expiration of warmer or hot air or excess sweating.

[77] This is attributable to hypovolemia leading to poor circulation of blood to head region. This may occur as a result of hypoglycemia or hyponatremia as well.

[78] This may be attributable to excess secretion of mucus from the large intestine, which contains bicarbonate ions in abundance owing to the activation of parasympathetic nervous system.

[79] This may be attributable to excess secretion in the stomach which leads to stretching of stomach, thereby the person may have pyloric antrum closure leading to reverse peristaltic movements, the end result may be either nausea or vomiting.

[80] This is attributable to the activation of parasympathetic nervous system. Activation of parasympathetic nervous system is responsible for the relaxation of sphincters in the alimentary canal and secretions in the alimentary canal.

[81] When there is subsidence of fever, replenishment of body fluids starts to occur, this will lead to the disappearance of mechanism of sludging of blood. Thus, the person will have lightness of the body.

[82] This can be attributable to replenishment of body fluids. When the person is having excess fluid loss, which is an essential feature of fever, there will be slowness of movement of blood in the smaller vessels, which is termed as sludging of blood. This is responsible for the appearance of heaviness of the body parts.

[83] This is attributable to relaxation of sphincters of different areas of gastrointestinal tract which is presented with vomiting or diarrhoea etc.

[84] Slight raise in body temperature indicates early onset of pathogenic events.

[85] The presence of dryness of body or body parts, indicates the peripheral vaso constriction, which imply poor blood circulation in the peripheral blood vessels.

[86] The term Shunaka refers to either localised or generalised swelling. This kind of presenting complaint may imply that increased protein content in the interstitial and intracellular compartments. By applying the Sterling forces, we can infer that excess concentration of proteins in interstitial and intracellular compartments, more fluid will move from capillaries to interstitial compartments.

of the body parts or whole body. This can be attributable to muscular spasm where the person

- **Kapha bhuyishta**[88] – predominance of *Kapha Dosha* seen in the patient

**Pralepaka Jvara:** Cardinal features of *Pralepaka Jvara* are as follow:

प्रतिम्पक्षिष गात्राणि धर्मेण गौरवेण च।
मन्द्रङ्क्वरविलेपी व सशीतः स्यात्प्रलेपकः॥
Ma.Ni. – 2/41

- This is a *Kapha Pitta* dominant condition
- Sensation of coating on the whole body or body parts[89]
- Heaviness of the body or body parts[90]
- **Mandajvara**[91] – slight raise in body temperature
- **Sheeta**[92] – sensation of coldness of the body or body parts

## Agantuja Jvara:

आगन्तुरष्टमो यस्तु स निर्दिष्टश्चतुर्विधः॥1 1 1॥
अभिघाताभिषङ्गाभ्यामभिचाराभिशापतः। Ca.Ci. – 3/111-112

*Agantuja Jvara* is manifested due to the external causes. In this situation, first there will be appearance of symptoms which will be followed by the vitiation of *Doshas*. The time period between the appearance of symptoms and vitiation of *Dosha* in *Agantuja Jvara* is 7 days. Four types of *Agantuja Jvara* are explained. They are

1. *Abhighataja Jvara*
2. *Abhishangaja Jvara*
3. *Abhicharaja Jvara*
4. *Abhishapaja Jvara*

## Abhighataja Jvara[93]:

शस्त्रलोष्टकशाकाष्ठमुष्टयर नितलद्विजैः॥1 1 2॥
तद्विधैश्च हते गात्रे ज्वरः स्यादभिघातजः।
तत्राभिघातजे वायुः प्रायो रक्तं प्रदूषयन्॥1 1 3॥
सव्यथाशोफ वैवर्ण्य करोति सरुजं ज्वरम्। Ca.Ci. – 3/112-114

- *Abhighataja Jvara* manifests due to the injury to the body because of trauma to the body by weapons, small stones or fist etc
- In this type of *Jvara*, first there will be vitiation of *Vata Dosha* along with diminution of *Rakta* from the body.
- This is associated with *Vyatha* (discomfort), *Shopha* (swelling), *Vaivarnya* (discolouration) and *Saruja* (pain)

## Abhishangaja Jvara[94]:

कामशोकभयक्रोधैरभिषक्तस्य यो ज्वरः॥1 1 4॥
सोऽभिषङ्गाज्वरो ज्ञेयो यश्च भूताभिषङ्गजः।
कामशोकभयाद्वायुः क्रोधात् पित्तं, त्रयो मलाः॥1 1 5॥
भूताभिषङ्गात् कुप्यन्ति भूतसामान्यलक्षणाः।
भूताधिकारे व्याख्यातं तदष्टविधलक्षणम्॥1 1 6॥
विषवृक्षानिलस्पर्शात्तथाऽन्यैर्विपसंभवैः।
अभिषक्तस्य चाप्याद्दुर्ज्वरमेकेऽभिषङ्गजम्॥1 1 7॥ Ca.Ci. – 3/114-117

- This type of *Jvara* occurs due to the exposure of the individual to poisonous plant, impure air, toxic substances, mental factors such as lust, grief, fear and anger; exposure to evil spirits.
- Exposure to lust, grief and fear will lead to the vitiation of *Vata Dosha*; exposure to anger will lead to the vitiation of *Pitta Dosha* and exposure to evil spirits will lead to the vitiation of all three *Dosha*.

ध्याननिःश्वासबडुलं लिङ्गं कामज्वरे स्मृतम्॥1 2 2॥
शोकजे वाप्पबहुलं त्रासप्रायं भयज्वरे।
क्रोधजे बहुसंरम्भं भूतावेशे त्वमानुषम्॥1 2 3॥
मूर्च्छामोहमदग्लानिभूयिष्ठं विषसंभवे।
केषाञ्चिदेषां लिङ्गानां संतापो जायते पुरः॥1 2 4॥
Ca.Ci. – 3/122 – 124

- In case of *Kamaja Jvara*, the person will be presented with *Dhyana* (absent mindedness or thinking continuously towards one object) and *Nishvasa*

---

may complain of chills or rigors. This is usually indicative of heat production which occurs as a result of muscular twitchings. It indicates that the temperature produced during the pathgenesis, is inadequate to combat the pyrogen.

[88] This is commonly seen in the Anupa Desha. As per Ayurveda fundamentals, this is identified by ample amount of water in the environment, presence of greenery around the environment. This may be the breeding place of mosquitoes. This may be the place of mosquito borne infections or water or contaminated water borne diseases.

[89] No possible explanation can be given to this symptom from the author.

[90] Heaviness of the body parts imply poor movement of the blood. This can be considered to be due to sludging of blood. When any pathogen enters into the body, that will be responsible for the increase of inflammatory markers in the body which are nothing but proteins. This is responsible for the increase of oncotic pressure in the interstitial compartment. As the movement of fluid, WBC etc move into the interstitial compartment. This will lead to the slow movement of the blood from the venous end of capillaries. Thus, the person may have heaviness of the body parts.

[91] This may imply initial phase of pyrogenesis or it may imply low virulence of the disease pathogen.

[92] This may imply there will be peripheral vaso constriction. This is responsible for the coldness of the body parts. In case of cold air exposure, the person may have dryness of respiratory passages because of respiratory passages.

[93] In this situation, the person will have physical trauma which leads to the discontinuity of the skin or epithelial membrane. This may lead to the entry of the microorganisms into the injured tissue if no proper measures are taken to prevent the haemorrhage or to prevent contamination.

[94] This may be attributable to exposure of the body to toxic plants or toxic gases or allergic plants. This may also be attributable to extreme emotional disturbances which may be leading to autonomic dysfunction, sympathetic nervous system in particular.

*Bahula*[95] (excess expiration or pursed lip breathing)

- In case of *Shokaja Jvara*, the person will be presented with *Bashpa Bahula* (increased tears from the eyes)
- In case of *Bhayaja Jvara*, the person will be presented with *Trasa Praya* (fearful look)
- In case of *Krodhaja Jvara*, the person will be presented with angry look
- In case of *Bhutaveshaja Jvara*, the person will be having inhuman activities.
- In case of *Vishaja Jvara*, the person will be having *Murcha* (altered state of consciousness); *Moha* (confusion); Mada (intoxication), *Glani* (fatigue or exhaustion)

### Abhicharaja and Abhishapaja Jvara:

**चित्तेन्द्रियशरीराणामर्तयोऽन्याश्च नैकशः।**
**प्रयोगं त्वभिचारस्य दृष्ट्रा शापस्य चैव हि॥120॥**
**स्वयं श्रुत्वाऽनुमानेन लक्ष्यैते प्रशमेन वा।**
**वैविध्यादभिचारस्य शापस्य च तदात्मके॥121॥**

Ca.Ci. – 3/120 – 121

- *Abhicharaja Jvara* is a type of *Jvara* manifests in an individual due to performing rituals mentioned in *Atharvaveda* etc
- *Abhishapaja Jvara* is the type of *Jvara* manifests in an individual due to the curse of the heavenly bodies, preceptors and elderly people.
- Above two types of *Agantuja Jvara* are considered to be manifested in the individuals due to the dominance of all three *Dosha*.

### Vishama Jvara:

**विषमो विषमारम्भक्रियाकालोऽनुपङ्गवान्।** A.Hr.Ni. – 2/69
**अधुना विषमज्वरस्य स्वरूप प्रतिपादयन्नाह - विपम इति।**
**विषमो - विषमसञ्ज्ञो ज्वरो, विषमारम्भक्रियाकालो भवति।**
**आरम्भश्च क्रिया च कालच आरम्भक्रियाकाला।**
**विषमा आरम्भक्रियाकाला यस्य स एवम्।**
**तत्र विषम आरम्भो यथा, - कश्चित्पूर्व मूर्धानमारभ्यागच्छति, कश्चित्पृष्ठम्, कश्चि- जङ्घाभ्यामिति।**
**विषमक्रियो यथा, - कश्चिच्छीतकृत् कश्चिद्दाहकृदिति।**
**विषमकालश्च यथा, - कश्चित्पूर्वाह्णे समागच्छति, काश्च न्मध्याहे, कश्चिदपराह्ले, कश्चिन्निशीथे, इति।**
**तथा, अनुषङ्गवान्दीर्घकालानुबन्धी।** Arunadatta, A.Hr.Ni. – 2/69

*Vishama Jvara*[96] is characterised by irregularity in the onset, abnormal function of the vitiated *Dosha* in the body, timing of appearance of the symptoms in a day and persistence of the symptoms for longer time. The irregularity in onset of the symptoms refers to appearance of the symptoms sometimes in the *Shiras* (head); sometimes in *Prishtha* (back) and sometimes in *Jangha* (region of hamstring muscles). The irregularity the abnormal function of vitiated *Dosha* refers to clinical presentation of cold sensation sometimes and sometimes hot sensation. The irregularity in timing of appearance of symptoms refers to the appearance of the symptoms in the morning, sometimes the appearance of the symptoms in the mid-noon, sometimes the appearance of the symptoms in the evening time or sometimes in the midnight. In other words, the clinical presentation of *Vishama Jvara* is unpredictable in the manifestation of the symptoms.

**दोषोऽल्पोऽहितसंभूतो ज्वरोत्सृष्टस्य वा पुनः॥31॥**
**धातुमन्यतमं प्राप्य करोति विषमज्वरम्।**
**( सन्ततः सततोऽन्येद्युस्तृतीयकचतुर्थकौ॥ )** Ma.Ni. – 2/31

A lean and emaciated person in whom the disease has recently subsided, if he indulges in improper diet and regimen, then in such individuals, the *Jvara* gets manifested, even though the *Dosha* vitiated are in milder form, get strength from *Dhatu* (*Dhatu*, *Mala* and *Kala*) and also in due course of time. Once, the *Dosha* gain strength, then only the symptoms manifest in the body. After the decrease of the strength of the *Dosha*, these *Dosha* will return to their places or become hidden in the *Dhatus*. The dormant *Dosha* will wait for the opportunity to gain strength for getting aggravated and erupted again. Till then, *Dosha* will remain dormant without producing any symptoms deep inside the *Dhatus*.

### Samprapti of Vishama Jvara as per Sushruta:

**क्षामाणां ज्वरमुक्तानां मिथ्याहारविहारिणाम्।**
**दोषः स्वल्पोऽपि संवृद्धो देहिनामनिलेरितः॥51॥**
**सततान्येद्युष्कत्र्याख्यचातुर्थान् सप्रलेपकान्।**
**कफस्थानविभागेन यथासंख्यं करोति हि॥52॥**
**अहोरात्रादहोरात्रात् स्थानात् स्थानं प्रपद्यते।**
**ततश्चामाशयं प्राप्य घोरं कुर्याज्ज्वरं नृणाम्॥53॥** Su.Ut. – 39/51-53

- *Sushruta* has described a different mode of *Samprapti* of *Vishama Jvara*. Due to the exposure to mild *Apathya* consumption, there will be vitiation of *Dosha*.
- The sites of *Dosha* vitiation in *Vishama Jvara* are sites of *Kapha Dosha* i.e. *Amashaya* (stomach), *Uras* (chest),

---

[95] This may be responsible for the pursed lip breathing. This is responsible for the bypass of three major functions of nose – filtration, humidification and warming of the inspiring air. This may lead to exposure to pyrogen to the respiratory passages. In this situation of Kamaja Jvara, the person may have the stimulation of sympathetic nervous system which leads to the dryness of the mouth, pharynx, larynx or lower respiratory passages and alimentary canal.

[96] This type of fever is manifested in an individual where in the person will have variable episodes of peripheral vasoconstriction and peripheral vasodilatation. In some other occasions, the person will have absolute normal temperature for a certain period of time. As per current understanding, the person will have intermittent type of fever. In this type of fever, the person may have some duration of symptom free period where raised body temperature comes to normal.

*Kantha* (throat), *Shiras* (head) and *Sandhi* (joints).

- When the vitiated *Dosha* remain in *Amashaya*, it will lead to the manifestation of *Satata Jvara*.
- When the vitiated *Dosha* remain in *Uras*, these will move to *Amashaya* in one day and thus leads to the manifestation of *Anyedyushka Jvara*.
- When the vitiated *Dosha* remain in *Kantha*, these will move to *Uras* in one day. From the *Uras*, these *Dosha* will move to *Amashaya* and thus leads to the manifestation of *Jvara* on every third day, *Tritiyaka Jvara*.
- When the vitiated *Dosha* remain in *Shiras*, due to further vitiation, these will move into *Kantha* in one day. From the *Kantha*, move to *Uras* in one day and from *Uras* move to *Amashaya* in one day. Thus, *Chaturthaka Jvara* will be manifested every 4th day.
- When the vitiated *Dosha* is observed in *Sandhi*, that will be responsible for the manifestation of *Pralepaka Jvara*.
- When the vitiated *Dosha* present in *Amashaya*, *Uras*, *Kantha*, *Shiras* and *Sandhi* simultaneously, these vitiated *Dosha* are responsible for the manifestation of *Santata Jvara*.

## Lakshana of Vishama Jvara:

(स्रोतोमखिता दोषा गुरवो रसवाहिभिः।
सर्वदेहानुगाः स्तग्धा ज्वरं कुर्वन्ति संततम्॥)
सप्ताहं वा दशाहं वा द्वादशाहमथापि वा।
सन्तत्या योऽविसर्गी स्यात्सन्ततः स निगद्यते॥34॥
अहोरात्रे सततको द्वौ कालाधनुवर्तते।
अन्येयुष्कस्त्वहोरात्र एककालं प्रवर्तते॥35॥
तृतीयकस्तृतीयेऽह्नि, चतुर्थेऽह्नि चतुर्थकः।
केचिद्भूताभिषङ्गोत्थं ब्रुवते विषमज्वरम्॥36॥ Ma.Ni. – 2/31-36
राज्यह्नोः षट्सु कालेषु कीर्तितेषु यथा पुरा॥62॥
प्रसह्य विषमोऽभ्येति मानवं बहुधा ज्वरः।
स चापि विषमो देहं न कदाचिद्विमुञ्चति॥63॥
ग्लानिगौरव कार्श्येभ्यः स समान्न प्रमुच्यते।
वेगे तु समतिक्रान्ते गतोऽयमिति लक्ष्यते॥64॥
धात्वन्तरस्थो लीनत्वान्न सौक्ष्म्यादुपलभ्यते।
अल्पदोषेन्धनः क्षीणः क्षीणेन्धन इवानलः॥65॥ Su.Ut. – 39/62-65

- The disease is characterised by being continuous or intermittent fever with remissions for a particular period of time. It is associated with exhaustion, heaviness of the body or emaciation.
- *Vishama Jvara* can manifest in six different periods of the day and night. These time periods are
  1. **Purvahna** – fore noon
  2. **Madhyahna** – mid day
  3. **Aparahna** – after noon
  4. **Pradosha** – evening
  5. **Ardharatra** - midnight
  6. **Pratyusha** – early morning
- During these periods, the *Dosha* become powerful and exhibit their symptoms in various ways. As the symptoms got manifested, the virulence of the *Dosha* decreases. The symptoms will subside after the reduction of virulence of *Dosha* and become dormant in the body and stay for the longer time and will not be eliminated from the body. This results in the presenting complaints of exhaustion, heaviness of the body and emaciation during the episode of the illness. The disease *Jvara* remains latent in the body of the patient deep within the *Dhatu* just like minute form of spark of fire with little fuel.

**Types of Vishama Jvara:** 5 types of *Vishama Jvara*.

1. *Santata Jvara*
2. *Satata Jvara*
3. *Anyedyushka Jvara*
4. *Tritiyaka Jvara*
5. *Caturthaka Jvara*

## Santata Jvara:

स्त्रोतोभिर्विसृता दोषा गुरवो रसवाहिभिः॥53॥
सर्वदेहानुगाः स्तब्धा ज्वरं कुर्वन्ति सन्ततम्।
दशाहं द्वादशाहं वा सप्ताहं वा सुदुःसहः॥54॥
स शीघ्रं शीघ्रकारित्वात् प्रशमं याति हन्ति वा।
कालदृष्यप्रकृतिभिर्दोषस्तुल्यो हि सन्ततम्॥55॥
निष्प्रत्यनीकः कुरुते तस्माज्ज्ञेयः सुदुःसहः।
यथा धातूंस्तथा मूत्रं पुरीषं चानिलादयः॥56॥
युगपच्चानुपद्यन्ते नियैमात् सन्तते ज्वरे।
स शुच्या वाऽप्यशुद्ध्या वा रसादीनामशेषतः॥57॥
सप्ताहादिषु कालेषु प्रशमं याति हन्ति वा।
यदा तु नातिशुध्यन्ति न वा शुध्यन्ति सर्वशः॥58॥
द्वादशैते समुद्दिष्टाः सन्ततस्याश्रयास्तदा।
विसर्गे द्वादशे कृत्वा दिवसेऽव्यक्तलक्षणम्॥59॥
दुर्लभोपशमः कालं दीर्घमप्यनुवर्तते।
इति बुवा ज्वरं वैद्य उपक्रामेत्तु सन्तर्तम्॥60॥ Ca.Ci. – 3/53-60

- The *Doshas* get vitiated which are Guru (heavy to digest) will spread all over the body through *Rasavaha Srotas*. Due to its heaviness, it may get entangled anywhere in the *Srotas*. This stagnation produces *Santata Jvara*. The nature of *Jvara* is continuous in form which stays for the longer period.
- The nature of fever is *Shighrakaritva* (acute in form) and gets cured or dies in 7 or 10 or 12 days of onset.
- *Santata Jvara* is *Nishpratyanika* in nature. The term *Pratyanika* refers to antagonistic and *Nishpratyanika* refers not antagonistic. That means the *Kala*, *Prakriti*, *Dushya* and vitiated *Dosha* work coherently in the manifestation of *Santata Jvara*. For example, the

person of *Kapha Prakriti* developing the symptoms in morning time involving *Rasa Dhatu* indicates more severity of the *Santata Jvara*.

- The durations of *Vata* dominant *Santata Jvara* is 7 days, *Pitta* dominant *Santata Jvara* is 10 days and *Kapha* dominant *Santata Jvara* is 12 days. Even after 12 days of appearance of *Jvara*, symptoms may persist even after the subsidence of vitiated *Dosha*. the refore the physician should plan to initiate the treatment otherwise it may turn difficult to cure.
- Various modalities of treatment are explained, but *Apatarpana* should be the first line of treatment.

### Satata Jvara:

**रक्तधात्वाधयः प्रायो दोषः सततकं ज्वरम्॥6 1॥**
**सप्रत्यनीकः कुरुते कालवृद्धिक्षयात्मकम्।**
**अहोरात्रे सततको द्वौ कालावनुवर्तते॥6 2॥** Ca.Ci. – 3/61-62

- *Satata Jvara* is manifested if the vitiated *Dosha* gets lodged in *Rakta Dhatu*. This usually counteracts with Kala with respect to increase and decrease in intensity.
- Therefore, depending upon the Kala, there will be aggravation and remission from *Jvara*.
- *Satata Jvara* rises twice in a day.

### Anyedyushka Jvara:

**कालप्रकृतिदृष्याणां प्राप्यैवान्यतमाद्बलम्।**
**अन्येद्युष्कं ज्वरं दोषो रुवा मेदोवहाः सिराः॥6 3॥**
**सप्रत्यनीको जनयत्येककाल महर्निशि।** Ca.Ci. – 3/63-64
**सोऽन्येद्युः पिशिताश्रितः॥** Ma.Ni. – 2/32

- Depending upon time, individual constitution and status of *Dushya*, there will be aggravation of symptoms.
- Vitiated *Dosha* will cause the affliction of *Medovaha Srotas*. As per *Vagbhata*, there will be the vitiation of *Mamsa Dhatu*.
- The fever manifests in once in a day.

### Tritiyaka Jvara:

**दोषोऽस्थिमज्जगः कुर्यात्तृतीयकचतुर्थकौ॥6 4॥** Ca.Ci. – 3/64
**मेदोगतस्तृतीयेऽह्नि,** Ma.Ni. – 2/33
**तृतीयकस्तृतीयेऽह्नि,** Ma.Ni. – 2/36

- *Tritiyaka Jvara* is manifested due to the involvement of *Asthi* and *Majja Dhatu* as per *Charaka*. As per *Madhavakara*, *Medas* is involved in *Tritiyaka Jvara*.
- In *Tritiyaka Jvara*, *Jvara* is manifested in every 3rd day.

### Types of Tritiyaka Jvara

**कफपित्तात्त्रिकग्राही पृष्ठाद्वातकफात्मकः।**
**वातपित्ताच्छिरोग्राही त्रिविधः स्यात्तृतीयकः॥3 7॥** Ma.Ni. 2/37

3 types of *Tritiyaka Jvara* are

1. **Kaphapittaja –** *Trika* or sacral region is afflicted.
2. **Vatakaphaja –** *Prishtha* or back is afflicted.
3. **Vatapittaja –** *Shiras* or head is afflicted.

### Chaturthaka Jvara:

**दोषोऽस्थिमज्जगः कुर्यात्तृतीयकचतुर्थकौ॥6 4॥** Ca.Ci. – 3/64
**त्वस्थिमज्जगतः पुनः।**
**कुर्याच्चतुर्थकं घोरमन्तकं** Ma.Ni. – 2/32
**चतुर्थेऽह्नि चतुर्थकः।** Ma.Ni. – 2/36

- As per *Charaka* and *Madhavakara, Chaturthaka Jvara* is manifested due to the involvement of *Asthi* and *Majja Dhatu*.
- In *Chaturthaka Jvara, Jvara* is manifested in every 4th day.

### Types of Chaturthaka Jvara:

**चतुर्थको दर्शयति प्रभावं द्विविधं ज्वरः।**
**जङ्घाभ्यां श्लैष्मिकः पूर्व शिरस्तोऽनिलसंभवः॥3 8॥** Ma.Ni. – 2/38

2 types of *Chaturthaka Jvara* are

1. **Kapha dominant Chaturthaka Jvara –** where *Jangha* or hamstrings are involved.
2. **Vata dominant Chaturthaka Jvara –** where *Shiras* or head is involved.

### Chaturthaka Viparyaya Jvara:

**विषमज्वर एवान्यश्चतुर्थकविपर्ययः।**
**स मध्ये ज्वरयत्यही आदावन्ते च मुञ्चति॥3 9॥ –** Ma.Ni. – 2/39

This is a variant of *Vishama Jvara*. In this type of *Jvara, Jvara* will be manifested in 2nd and 3rd day. During 1st and 4th days, the person will be free from the symptoms of *Jvara*.

**Punaravartaka Jvara:** *Punaravartaka Jvara* is a type of *Jvara* which recurs in the individual after exposure to certain etiological factors.

### Nidana of Punaravartaka[97] Jvara:

**सज्वरो ज्वरमुक्तश्च विदाहीनि गुरूणि च।**
**असात्म्यान्यन्नपानानि विरुद्धानि च वर्जयेत्॥3 3 0॥**
**व्यवायमतिचेष्टाश्च स्नानमत्यशनानि च।**
**तथा ज्वरः शमं याति प्रशान्तो जायते न च॥3 3 1॥**
**व्यायामं च व्यवायं च स्नानं चक्रमणानि च।**

---

[97] This can be attributable to intermittent type of fever or recurrent fever or irregular fever. Let us take one example of Vyayama (exercise). In this situation, the person may have increased blood supply to the area where more muscular activity is seen. In that condition, pyrogen which may be restricted to one place may move to the part of the body which receives more amount of blood supply. Thus, there may be a possibility of antigen antibody reaction which may be the reason for raised body temperature. Likewise, you can give explanations to other causes of Punaravartaka Jvara.

ज्वरमुक्तो न सेवेत यावन्न बलवान् भवेत्॥332॥ Ca.Ci. – 3/330-332

When the person is getting relief from *Jvara* for a short period of time, if he indulges in.

- **Vidahi Ahara** – consumption of food substances responsible for the burning sensation or thirst etc.
- **Guru Ahara** – consumption of food substances which are heavy to digest.
- **Asatmya Annapana** – consumption of unwholesome food substances.
- **Viruddha Ahara** – consumption of incompatible food substances.
- **Ativyavaya** – excess indulgence in sexual activities.
- **Ati cheshta** – excess activities.
- **Snana** – bathing.
- **Atyashana** – consumption of large amount of food substances at a time.
- **Vyayama** – performing excess exercises.
- **Chankramana** – excess walking.

### Lakshana of Punaravartaka Jvara:

असंजातबलो यस्तु ज्वरमुक्तो निषेवते।
वर्ज्यमेतन्नरस्तस्य पुनरावर्तते ज्वरः॥333॥
दुर्हृतेषु च दोषेषु यस्य वा विनिवर्तते।
स्वल्पेनाप्यपचारेण तस्य व्यावर्तते पुनः॥334॥
चिरकालपरिक्लिष्टं दुर्बलं हीनतेजसम्।
अचिरेणैव कालेन स हन्ति पुनरागतः॥335॥
अथवाऽपि परीपाकं धातुष्वेव क्रमान्मलाः।
यान्ति ज्वरमकुर्वन्तस्ते तथाऽप्यपकुर्वते॥336॥
दीनतां श्वयथुं ग्लानिं पाण्डुतां नान्नकामताम्।
कण्डूरुत्कोठपिडकाः कुर्वन्त्यग्निं च ते मृदुम्॥337॥
एवमन्येऽपि च गदा व्यावर्तन्ते पुनर्गताः।
अनिर्घातेन दोषाणामल्पैरप्यहितैर्नृणाम्॥338॥
निर्वृत्तेऽपि ज्वरे तस्माद्यथावस्थं यथाबलम्।
यथाप्राणं हरेद्दोषं प्रयोगैर्वा शमं नयेत्॥339॥ Ca.Ci. – 3/333-339

- Due to subsidence of fever and the incomplete recovery from the illness and the person is indulging in above said etiological factors even for a shorter duration, there will be recurrence in the manifestation of *Jvara*.
- The person will be presented with clinical features such as *Dinata* (illlook), *Shvayathu* (generalised or localised swelling), *Glani* (exhaustion or fatigue), *Panduta* (anemia), *Anannakamata* (lack of desire to consume food), *Kandu* (itching), *Utkotha* (wheals), *Pidaka* (boils) and *Agnimandya* (loss of appetite) and other diseases.

### Dhatugata Jvara

The term *Dhatugata Jvara* refers to the presence of vitiated *Dosha* in the *Dhatu* in the body. The severity of the *Lakshana* is becoming more and more severe depending upon the involvement of *Dhatu*. The following are the *Lakshana* observed in the different *Dhatugata Jvara*.

गुरुत्वं दैन्यमुद्वेगः सदनं छर्द्यरोचकौ।
रसस्थिते बहिस्तापः साङ्गमर्दो विजृम्भणम्॥76॥
रक्तोष्णाः पिडकास्तृष्णा सरक्तं ष्ठीवनं मुहुः।
दाहरागभ्रममदप्रलापा रक्तसंस्थिते॥77॥
अन्तर्दाहः सतृणमोहः सग्लानिः सृष्टविकता।
दौर्गन्ध्यं गात्रविक्षेपो ज्वरे मांसस्थिते भवेत्॥78॥
स्वेदस्तीवा पिपासा च प्रलापो वम्यभीक्ष्णशः।
स्वगन्धस्यासहत्वं च मेदःस्थे ग्लान्यरोचकौ॥79॥
विरेकघमने चोभे सास्थिभेदं प्रकूजनम्।
विक्षेपणं च गात्राणां श्वासश्चास्थिगते ज्वरे॥80॥
हिक्का श्वासस्तथा कासस्तमसश्चातिदर्शनम्।
मर्मच्छेदो वहिः शैत्यं दाहोऽन्तश्चैव मज्जगे॥81॥
शुक्रस्थानगतः शुक्रमोक्षं कृत्वा विनाश्य च।
प्राणं वाय्वग्निसोमैश्च सार्धं गच्छत्यसौ विभुः॥82॥
रसरक्ताश्रितः साध्यो मेदोमांसगतश्च यः।
अस्थिमज्जगतः कृच्छ्रः शुक्रस्थो नैव सिद्ध्यति॥83॥

Ca.Ci. – 2/76-83

**Lakshana of Rasadhatugata Jvara:** *Gurutva* (heaviness of the body), *Dainya* (ill look), *Udvega* (anxiety), *Sadana* (sluggish movement of the body parts), *Chardi* (vomiting), *Arochaka* (tastelessness), *Bahistapa* (raised temperature in the exterior or skin), *Angamarda* (bodyache), *Vijrimbhana* (excessive yawning).

**Lakshana of Raktadhatugata Jvara:** *Rakta* and *Ushna Pidaka* (reddish and warm rashes), *Trishna* (thirst), *Muhuh Sarakta Shtivana* (frequent expectoration of sputum mixed with blood), *Daha* (burning sensation), *Raga* (redness), *Bhrama* (giddiness), *Mada* (intoxication or altered sensation), *Pralapa* (irrelevant or incomprehensible speech).

**Lakshana of Mamsadhatugata Jvara:** *Antardaha* (burning sensation felt inside the body), *Trishna* (thirst), *Moha* (confusion), *Glani* (exhaustion), *Shrishta Vit* (unformed stools), *Daurgandhya* (foul smell from the body), *Gatravikshepa* (involuntary movements of the body parts).

**Lakshana of Medodhatugata Jvara:** *Sveda* (sweating), *Tivra Pipasa* (severe thirst), *Pralapa* (irrelevant speech), *Abhikshna Vamana* (projectile or effortless vomiting), *Svagandhasya Asahatva* (aversion towards smell of one's own body), *Glani* (exhaustion), *Arochaka* (tastelessness).

**Lakshana of Asthidhatugata Jvara:** *Virechana* and *Vamana* at a time (vomiting and diarrhoea at a time), *Asthibheda* (tearing type of pain in the bones), *Prakujana* (specific type of sound made by the patient), *Gatranam Vikshepa* (involuntary movements of the body parts), *Shvasa* (breathlessness).

**Lakshana of Majjadhatugata Jvara:** *Hikka* (hiccup), *Shvasa* (breathlessness), *Kasa* (cough), *Tamasah Darshana* (darkness in front of the eyes), *Marmaccheda* (tearing type of pain in vital points), *Bahih Shaitya* (feeling of coldness in the skin or exterior), *Antardaha* (burning sensation inside the body).

**Lakshana of Shukradhatugata Jvara:** *Vinasha* of the individual after *Shukra Moksha* (destruction of the body after ejaculation of semen), *Marana* (death).

### Sadhysadhyata of Dhatugata Jvara:

- *Rasadhatugata, Raktadhatugata, Mamsadhatugata* and *Medodhatugata Jvara* are considered as *Sadhya* (easily curable) in nature.
- *Asthidhatugata* and *Majjadhatugata Jvara* are considered as *Kricchrasadhya* (difficult to cure) in nature.
- *Shukradhatugata Jvara* is considered as *Asadhya* (incurable) in nature.

### Sannipataja Jvara:

सन्निपातज्वरस्योर्ध्वे त्रयोदशविधस्य हि।
प्राक्सूत्रितस्य वक्ष्यामि लक्षणं वै पृथक् पृथक्॥90॥
भ्रमः पिपासा दाहश्च गौरवं शिरसोऽतिरुक्।
वातपित्तल्बणे विद्यालिङ्गं मन्दकफे ज्वरे॥91॥
शैत्यं कासोऽरुचिस्तन्द्रापिपासादाहरुग्व्यथाः।
वातश्लेष्मोल्बणे व्याधौ लिङ्गं पित्तावरे विदुः॥92॥
छर्दिः शैत्यं मुहुर्दाहस्तृष्णा मोहोऽस्थिवेदना।
मन्दवाते व्यवस्यन्ति लिङ्गं पित्तकफोल्बणे॥93॥
सन्ध्यस्थिशिरसः शूलं प्रलापो गौरवं भ्रमः।
वातोल्बणे स्याद् द्यनुगे तृष्णा कण्ठास्यशुष्कता 94
रक्तविण्मूत्रता दाहः खेदस्तृड् बलसंक्षयः।
मूर्च्छा चेति त्रिदोषे स्याल्लिङ्गं पित्ते गरयसि॥95॥
आलस्यारुचिहृल्लासदाहवम्यरतिभ्रमैः।
कफोल्बणं सन्निपातं तन्द्राकासेन चादिशेत्॥96॥
प्रतिश्या छर्दिरालस्यं तन्द्राऽरुच्यग्निमार्दवम्।
हीनवाते पित्तमध्ये लिङ्गं श्लेष्माधिके मतम्॥97॥
हारिद्रमूत्रनेत्रत्वं दाहस्तृष्णा भ्रमोऽरुचिः।
हीनयाते मध्यकफे लिङ्गं पित्ताधिके मतम्॥98॥
शिरोरुग्वेपथुः श्वासः प्रलापश्छर्धरोचकौ।
हीनपित्ते मध्यकफे लिङ्गं स्यान्मारुताधिके॥99॥
शीतको गौरवं तन्द्रा प्रलापोऽस्थिशिरोऽतिरुक्।
हीनपित्ते वातमध्ये लिङ्गं श्लेष्माधिके विदुः॥100॥
श्वासः कासः प्रतिश्यायो मुखशोषोऽतिपार्श्वरुक्।
कफहीने पित्तमध्ये लिङ्गं वाताधिके मतम्॥101॥
बचभेदोऽग्निदौर्बल्यं तृष्णा दाहोऽचिर्भ्रमः।
कफहीने वातमध्ये लिङ्गं पित्ताधिके विदुः॥102॥ Ca.Ci. – 3/90-102

**Vata Pittolbana Manda Kaphaja Jvara:** This is associated with giddiness, thirst, burning sensation, heaviness and excessive headache.

**Vata Kapholbana Manda Pittaja Jvara:** This is associated with coldness, cough, anorexia, drowsiness, thirst, burning sensation, pain and distress.

**Pitta Kapholbana Manda Vataja Jvara:** This is associated with vomiting, burning sensation and coldish sensation alternatively, thirst, unconsciousness and pain in bones.

**Vatolbana Manda Pitta Kaphaja Jvara:** This is associated with pain in joints, bones and head; delirium, heaviness, giddiness, thirst, dryness of throat and mouth.

**Pittolbana Manda Vata Kaphaja Jvara:** This is associated with reddish discolouration of stool and urine; burning sensation, sweating, thirst, loss of strength and fainting.

**Kapholbana Manda Vatapittaja Jvara:** This is associated with laziness, anorexia, nausea, burning sensation, vomiting, restlessness, giddiness, drowsiness and cough.

**Kapholbana Madhya Pitta and Manda Vataja Jvara:** This is associated with coryza, vomiting, laziness, drowsiness, anorexia, loss of function of *Agni*.

**Pittolbana, Madhya Kapha and Manda Vataja Jvara:** This is associated with predominance of *Pitta* followed by moderate *Kapha* increase and mild vitiation of *Vata*, yellowish discolouration of urine and eyes; burning sensation, thirst, giddiness and anorexia.

**Vatolbana, Madhya Kapha and Manda Pittaja Jvara:** This is associated with predominance of *Vata* followed by moderate increase of *Kapha* and mild vitiation of *Pitta*; headache, tremors, breathlessness, delirium, vomiting and anorexia.

**Kapholbana, Madhya Vata and Manda Pittaja Jvara:** This is associated with predominance of *Kapha*, followed by moderate increase of *Vata* and mild vitiation of *Pitta*, cold sensation of body parts, heaviness, drowsiness, delirium and excessive pain in bone and head.

**Vatolbana Madhya Pitta and Manda Kaphaja Jvara:** This is associated with predominance of *Vata*, followed by moderate increase of *Pitta* and mild vitiation of *Kapha*; breathlessness, cough, coryza, dryness of mouth and excess chest discomfort.

**Pittolbana, Madhya Vata and Manda Kaphaja Jvara:** This is associated with predominance of *Pitta*, followed by moderate increase of *Vata* and mild vitiation of *Kapha*, *diarrhoea*, sluggish digestion, thirst, burning sensation, anorexia and giddiness.

### Sama Sannipataja Jvara:

क्षणे दाहः क्षणे शीतमस्थिसन्धिशिरोरुजा॥103॥
सास्त्रावे कलुषे रक्ते निर्भुग्ने चापि दर्शने।
सस्वनी सरुजी कर्णौ कण्ठः शुकैरिवावृतः॥104॥
तन्द्रा मोहः प्रलापश्च कासः श्वासोऽरुचिर्भ्रमः।
परिदग्धा खरस्पर्शा जिह्वा स्त्रस्ताङ्गता परम्॥105॥
ष्ठीवनं रक्तपित्तस्य कफेनोन्मिथितस्य च।
शिरसो लोठनं तृष्णा निद्रानाशो हृदि व्यथा॥106॥
स्वेदमूत्रपुरीषाणां चिराद्दर्शनमल्पशः।
शत्वं नातिगात्राणां प्रततं कण्ठकूजनम्॥107॥
कोठानां श्यावरतानां मण्डलानां च दर्शनम्।
मूकत्वं स्त्रोतसां पाको गुरुत्वमुदरस्य च॥108॥

चिरात् पाकश्च दोषाणां सन्निपातज्वराकृतिः। Ca.Ci. – 3/103-108

- Frequent appearance[98] of burning sensation and cold sensation in the body.
- Discomfort in bones, joints and head.
- Eyes are filled with tears, muddy discolouration, reddish discolouration, sunken eyes.
- Ringing sensation or tinninus and pain in the ears[99].
- Sensation of filling of throat with *Shuka*[100] (paddy like substance having pointed ends on either sides).
- Drowsiness, altered state of consciousness, irrelevant and incomprehensible speech[101].
- Cough, breathlessness[102].
- Tastelessness[103].
- Giddiness[104].
- Rough tongue[105] and sensation of roughness of the tongue.
- Dislocation of the body parts or joints.
- Presence of blood in the sputum or presence of mucus along with blood in the sputum[106].
- Involuntary or uncontrolled movement of head.
- Thirst[107].
- Loss of sleep[108].
- Discomfort in the chest region[109].
- Very little or delayed appearance of sweat, urine and faecal matter[110].
- Emaciation of the body[111].
- Continuous production of sound from throat.
- Appearance of circular blackish or reddish rashes.
- Dumbness.
- Suppuration[112] in various channels of the body.
- Heaviness of the abdominal region.
- Delayed process of *Doshapaka* in the body.

## 8 types of Jvara

### Vataja Jvara:

वेपथुर्विषमो वेगः कण्ठौष्ठपरिशोषणम्।

---

GK

[98] This is attributable to the frequent peripheral vaso dilatation and vaso constriction. When the person is having peripheral vaso dilatation, there may be a possibility of burning sensation and when the person is having peripheral vaso constriction, the person may present with cold sensation. This presenting symptom indicates unstable pathophysiology in terms of peripheral circulatory abnormalities.

[99] This is attributable to poor peripheral circulation or to nasal blockage which obstruct the eustachian tube. When there is poor peripheral circulation, there will be less formation of perilymph and endolymph and thus the person may be presented with hearing impairments. When the person is having nasal blockage, this will block the eustachian tube and this is responsible for the pain in the ears.

[100] This is the Purvarupa (premonitory symptom) observed in the patient of Kasa. This is indicative of respiratory dysfunction.

[101] This is attributable to poor circulation over brain or nervous system. This symptom can be seen in case of syncopal attack which is a sequel of hypovolemia.

[102] This symptom is attributable to abnormal respiratory function.

[103] This is attributable to the poor alimentary canal function. This is seen in sympathetic nervous system activation.

[104] This is attributable to the poor circulation to the head and neck. This is occurring due to the syncopal attack.

[105] This is attributable to poor alimentary canal function. This occurs as a result of activation of sympathetic nervous system which in turn results in poor secretion in alimentary canal including salivary glands. That is the reason, the person may have roughness of the tongue as a sequel of poor metabolism in the body.

[106] The presence of blood in the sputum may indicate serious respiratory infection such as tuberculosis or rupture of the capillaries in the respiratory system.

[107] The presence of thirst implies that decrease of the fluid in the intravascular, interstitial and intracellular compartments. But, when an individual consumes considerable amount of water, only after 30 to 60 minutes, he may be in a position to have relief from the thirst. This may indicate loss of the fluid most in the form of sweat or through breath. The person may also have the habit of breathing through open mouth i.e. panting process. This is a quick mechanism where thirst may appear in very short time due to mouth breathing.

[108] There are two types of sleep, they are REM sleep (25% of the total duration of sleep) and NREM sleep (75% of the total duration of sleep). REM sleep recurs every 90 minutes where REM may have the time duration of 5 to 30 minutes.

- In this condition, loss of sleep can be attributable to increased time duration of REM sleep and decreased time duration of NREM sleep.

[109] As per current understanding, the presence of fever considered as constitutional symptom. The association of the symptom determines the systemic dysfunction. When an individual presented with chest discomfort, it implies the affliction of either respiratory system or cardiovascular system or alimentary canal or Musculo skeletal system or neurological system. The location of the symptom, radiation of the symptom, presence of associated symptoms. For example, if the person is presented with severe degree of cough with sputum, may have chest discomfort on either sides of the chest.

[110] Very little formation of sweat and urine implies decreased hydration of the body secondary to the fluid loss naturally occurs as a result of increased heat in the body. In this, there will be shrinkage of the intravascular compartment. In case of little faecal matter formation, there may be activation of sympathetic nervous system which in turn leads to contraction of anal sphincter which leads to absorption of 75% of the water portion from the faecal matter. Because of this, the person may have the complaint of constipation.

[111] When an individual is presented with severe form of fever, that is caused by two pathological mechanisms viz. increased heat production or decreased heat loss from the body. In case of increased heat production, there will be enhanced catabolism in the body, that is more utilisation of the nutrients either circulating in the blood or body fluid or deposited in the body tissues. This will lead to the emaciation of the body.

[112] When there is suppuration happening in the body, there will be interaction between the white blood cells with pathogens in the body. This mechanism is responsible for the manifestation of fever.

in the skin or exterior), *Antardaha* (burning sensation inside the body).

**Lakshana of Shukradhatugata Jvara:** *Vinasha* of the individual after *Shukra Moksha* (destruction of the body after ejaculation of semen), *Marana* (death).

### Sadhysadhyata of Dhatugata Jvara:

- *Rasadhatugata, Raktadhatugata, Mamsadhatugata* and *Medodhatugata Jvara* are considered as *Sadhya* (easily curable) in nature.
- *Asthidhatugata* and *Majjadhatugata Jvara* are considered as *Kricchrasadhya* (difficult to cure) in nature.
- *Shukradhatugata Jvara* is considered as *Asadhya* (incurable) in nature.

### Sannipataja Jvara:

सन्निपातज्वरस्योर्ध्वे त्रयोदशविधस्य हि।
प्राक्सूत्रितस्य वक्ष्यामि लक्षणं वै पृथक् पृथक्॥90॥
भ्रमः पिपासा दाहश्च गौरवं शिरसोऽतिरुक्।
वातपित्तल्बणे विद्यालिङ्गं मन्दकफे ज्वरे॥91॥
शैत्यं कासोऽरुचिस्तन्द्रापिपासादाहरुग्व्यथाः।
वातश्लेष्मोल्बणे व्याधौ लिङ्गं पित्तावरे विदुः॥92॥
छर्दिः शैत्यं मुहुर्दाहस्तृष्णा मोहोऽस्थिवेदना।
मन्दवाते व्यवस्यन्ति लिङ्गं पित्तकफोल्बणे॥93॥
सन्ध्यस्थिशिरसः शूलं प्रलापो गौरवं भ्रमः।
वातोल्बणे स्याद् द्व्यनुगे तृष्णा कण्ठास्यशुष्कता 94
रक्तविण्मूत्रता दाहः खेदस्तृड् बलसंक्षयः।
मूर्च्छा चेति त्रिदोषे स्याल्लिङ्गं पित्ते गरयसि॥95॥
आलस्यारुचिहृल्लासदाहवम्यरतिभ्रमैः।
कफोल्बणं सन्निपातं तन्द्राकासेन चादिशेत्॥96॥
प्रतिश्या छर्दिरालस्यं तन्द्राऽरुच्यग्निमार्दवम्।
हीनवाते पित्तमध्ये लिङ्गं श्लेष्माधिके मतम्॥97॥
हारिद्रमूत्रनेत्रत्वं दाहस्तृष्णा भ्रमोऽरुचिः।
हीनयाते मध्यकफे लिङ्गं पित्ताधिके मतम्॥98॥
शिरोरुग्वेपथुः श्वासः प्रलापश्छर्धरोचकौ।
हीनपित्ते मध्यकफे लिङ्गं स्यान्मारुताधिके॥99॥
शीतको गौरवं तन्द्रा प्रलापोऽस्थिशिरोऽतिरुक्।
हीनपित्ते वातमध्ये लिङ्गं श्लेष्माधिके विदुः॥100॥
श्वासः कासः प्रतिश्यायो मुखशोषोऽतिपार्श्वरुक्।
कफहीने पित्तमध्ये लिङ्गं वाताधिके मतम्॥101॥
बचभेदोऽग्निदौर्बल्यं तृष्णा दाहोऽचिर्भ्रमः।
कफहीने वातमध्ये लिङ्गं पित्ताधिके विदुः॥102॥ Ca.Ci. – 3/90-102

**Vata Pittolbana Manda Kaphaja Jvara:** This is associated with giddiness, thirst, burning sensation, heaviness and excessive headache.

**Vata Kapholbana Manda Pittaja Jvara:** This is associated with coldness, cough, anorexia, drowsiness, thirst, burning sensation, pain and distress.

**Pitta Kapholbana Manda Vataja Jvara:** This is associated with vomiting, burning sensation and coldish sensation alternatively, thirst, unconsciousness and pain in bones.

**Vatolbana Manda Pitta Kaphaja Jvara:** This is associated with pain in joints, bones and head; delirium, heaviness, giddiness, thirst, dryness of throat and mouth.

**Pittolbana Manda Vata Kaphaja Jvara:** This is associated with reddish discolouration of stool and urine; burning sensation, sweating, thirst, loss of strength and fainting.

**Kapholbana Manda Vatapittaja Jvara:** This is associated with laziness, anorexia, nausea, burning sensation, vomiting, restlessness, giddiness, drowsiness and cough.

**Kapholbana Madhya Pitta and Manda Vataja Jvara:** This is associated with coryza, vomiting, laziness, drowsiness, anorexia, loss of function of *Agni*.

**Pittolbana, Madhya Kapha and Manda Vataja Jvara:** This is associated with predominance of *Pitta* followed by moderate *Kapha* increase and mild vitiation of *Vata*, yellowish discolouration of urine and eyes; burning sensation, thirst, giddiness and anorexia.

**Vatolbana, Madhya Kapha and Manda Pittaja Jvara:** This is associated with predominance of *Vata* followed by moderate increase of *Kapha* and mild vitiation of *Pitta*; headache, tremors, breathlessness, delirium, vomiting and anorexia.

**Kapholbana, Madhya Vata and Manda Pittaja Jvara:** This is associated with predominance of *Kapha*, followed by moderate increase of *Vata* and mild vitiation of *Pitta*, cold sensation of body parts, heaviness, drowsiness, delirium and excessive pain in bone and head.

**Vatolbana Madhya Pitta and Manda Kaphaja Jvara:** This is associated with predominance of *Vata*, followed by moderate increase of *Pitta* and mild vitiation of *Kapha*; breathlessness, cough, coryza, dryness of mouth and excess chest discomfort.

**Pittolbana, Madhya Vata and Manda Kaphaja Jvara:** This is associated with predominance of *Pitta*, followed by moderate increase of *Vata* and mild vitiation of *Kapha*, *diarrhoea*, sluggish digestion, thirst, burning sensation, anorexia and giddiness.

### Sama Sannipataja Jvara:

क्षणे दाहः क्षणे शीतमस्थिसन्धिशिरोरुजा॥103॥
सास्त्रावे कलुषे रक्ते निर्भुग्ने चापि दर्शने।
सस्वनी सरुजी कर्णौ कण्ठः शुकैरिवावृतः॥104॥
तन्द्रा मोहः प्रलापश्च कासः श्वासोऽरुचिर्भ्रमः।
परिदग्धा खरस्पर्श जिह्वा स्रस्ताङ्गता परम्॥105॥
ष्ठीवनं रक्तपित्तस्य कफेनोन्मिथितस्य च।
शिरसो लोठनं तृष्णा निद्रानाशो हृदि व्यथा॥106॥
स्वेदमूत्रपुरीषाणां चिराद्दर्शनमल्पशः।
शत्वं नातिगात्राणां प्रततं कण्ठकूजनम्॥107॥
कोठानां श्यावरतानां मण्डलानां च दर्शनम्।
मूकत्वं स्त्रोतसां पाको गुरुत्वमुदरस्य च॥108॥

चिरात् पाकश्च दोषाणां सन्निपातज्वराकृतिः। Ca.Ci. – 3/103-108

- Frequent appearance[98] of burning sensation and cold sensation in the body.
- Discomfort in bones, joints and head.
- Eyes are filled with tears, muddy discolouration, reddish discolouration, sunken eyes.
- Ringing sensation or tinninus and pain in the ears[99]
- Sensation of filling of throat with *Shuka*[100] (paddy like substance having pointed ends on either sides).
- Drowsiness, altered state of consciousness, irrelevant and incomprehensible speech[101].
- Cough, breathlessness[102].
- Tastelessness[103].
- Giddiness[104].
- Rough tongue[105] and sensation of roughness of the tongue.
- Dislocation of the body parts or joints.
- Presence of blood in the sputum or presence of mucus along with blood in the sputum[106]
- Involuntary or uncontrolled movement of head.
- Thirst[107].
- Loss of sleep[108].
- Discomfort in the chest region[109].
- Very little or delayed appearance of sweat, urine and faecal matter[110].
- Emaciation of the body[111].
- Continuous production of sound from throat.
- Appearance of circular blackish or reddish rashes.
- Dumbness.
- Suppuration[112] in various channels of the body.
- Heaviness of the abdominal region.
- Delayed process of *Doshapaka* in the body.

## 8 types of Jvara

### Vataja Jvara:

वेपथुर्विषमो वेगः कण्ठौष्ठपरिशोषणम्।

---

[98] This is attributable to the frequent peripheral vaso dilatation and vaso constriction. When the person is having peripheral vaso dilatation, there may be a possibility of burning sensation and when the person is having peripheral vaso constriction, the person may present with cold sensation. This presenting symptom indicates unstable pathophysiology in terms of peripheral circulatory abnormalities.

[99] This is attributable to poor peripheral circulation or to nasal blockage which obstruct the eustachian tube. When there is poor peripheral circulation, there will be less formation of perilymph and endolymph and thus the person may be presented with hearing impairments. When the person is having nasal blockage, this will block the eustachian tube and this is responsible for the pain in the ears.

[100] This is the Purvarupa (premonitory symptom) observed in the patient of Kasa. This is indicative of respiratory dysfunction.

[101] This is attributable to poor circulation over brain or nervous system. This symptom can be seen in case of syncopal attack which is a sequel of hypovolemia.

[102] This symptom is attributable to abnormal respiratory function.

[103] This is attributable to the poor alimentary canal function. This is seen in sympathetic nervous system activation.

[104] This is attributable to the poor circulation to the head and neck. This is occurring due to the syncopal attack.

[105] This is attributable to poor alimentary canal function. This occurs as a result of activation of sympathetic nervous system which in turn results in poor secretion in alimentary canal including salivary glands. That is the reason, the person may have roughness of the tongue as a sequel of poor metabolism in the body.

[106] The presence of blood in the sputum may indicate serious respiratory infection such as tuberculosis or rupture of the capillaries in the respiratory system.

[107] The presence of thirst implies that decrease of the fluid in the intravascular, interstitial and intracellular compartments. But, when an individual consumes considerable amount of water, only after 30 to 60 minutes, he may be in a position to have relief from the thirst. This may indicate loss of the fluid most in the form of sweat or through breath. The person may also have the habit of breathing through open mouth i.e. panting process. This is a quick mechanism where thirst may appear in very short time due to mouth breathing.

[108] There are two types of sleep, they are REM sleep (25% of the total duration of sleep) and NREM sleep (75% of the total duration of sleep). REM sleep recurs every 90 minutes where REM may have the time duration of 5 to 30 minutes.

- In this condition, loss of sleep can be attributable to increased time duration of REM sleep and decreased time duration of NREM sleep.

[109] As per current understanding, the presence of fever considered as constitutional symptom. The association of the symptom determines the systemic dysfunction. When an individual presented with chest discomfort, it implies the affliction of either respiratory system or cardiovascular system or alimentary canal or Musculo skeletal system or neurological system. The location of the symptom, radiation of the symptom, presence of associated symptoms. For example, if the person is presented with severe degree of cough with sputum, may have chest discomfort on either sides of the chest.

[110] Very little formation of sweat and urine implies decreased hydration of the body secondary to the fluid loss naturally occurs as a result of increased heat in the body. In this, there will be shrinkage of the intravascular compartment. In case of little faecal matter formation, there may be activation of sympathetic nervous system which in turn leads to contraction of anal sphincter which leads to absorption of 75% of the water portion from the faecal matter. Because of this, the person may have the complaint of constipation.

[111] When an individual is presented with severe form of fever, that is caused by two pathological mechanisms viz. increased heat production or decreased heat loss from the body. In case of increased heat production, there will be enhanced catabolism in the body, that is more utilisation of the nutrients either circulating in the blood or body fluid or deposited in the body tissues. This will lead to the emaciation of the body.

[112] When there is suppuration happening in the body, there will be interaction between the white blood cells with pathogens in the body. This mechanism is responsible for the manifestation of fever.

निद्रानाशः क्षवस्तम्भो गात्राणां रौक्ष्यमेव च॥8॥
शिरोहृद्गात्ररुग्वक्त्रवैरस्यं गाढविट्कता।
शूलाध्माने जृम्भणं च भवन्त्यनिलजे ज्वरे॥9॥ Ma.Ni. – 2/8-9

- Involuntary movements.
- Irregularity in appearance, progression and remission of symptoms of *Jvara*.
- Dryness of throat, lips.
- Loss of sleep.
- Sneezing.
- Stiffness of the body parts.
- Dryness of the body parts.
- Headache.
- Chest discomfort.
- Bodyache.
- Abnormal taste perception.
- Passing of very hard faecal matter.
- Abdominal pain.
- Distention of the abdomen.
- Excessive yawning.

### Pittaja Jvara:

वेगस्तीक्ष्णोऽतिसारश्च निद्राल्पत्वं तथा वमिः।
कण्ठौष्ठमुखनासानां पाकः स्वेदश्च जायते॥1 0॥
प्रलापो वक्त्रकटुता मूर्च्छा दाहो मदस्तृषा।
पीतविण्मूत्रनेत्रत्वं पैत्तिके भ्रम एव च॥1 1॥ Ma.Ni. – 2/10-11

- Rapid onset, progression of the *Jvara*.
- Diarrhoea.
- Less amount of sleep.
- Vomiting.
- Suppuration in the throat.
- Pus formation in the lips.
- Pus formation in the oral cavity.
- Pus formation in the nasal region.
- Excess sweating.
- Irrelevant speech.
- Pungent taste in the mouth.
- Altered state of consciousness.
- Burning sensation in different body parts.
- State of intoxication.
- Thirst.
- Yellowish discolouration of urine.
- Yellowish discolouration of fecal matter.
- Yellowish discolouration of eyes.
- Giddiness.

### Kaphaja Jvara:

स्तैमित्यं स्तिमितो वेग आलस्यं मधुरास्यता।
शुक्लमूत्रपुरीषत्वं स्तम्भस्तृप्तिरथापि च॥1 2॥
( नात्युष्णगात्रता छर्दिरङ्गसादोऽविपाकिता )
गौरवं शीतमुक्क्लेदो रोमहर्षोऽतिनिद्रता।
डस्रोतोरोधो गल्पत्वं प्रसेको लवणास्यता।
नात्युष्ण गात्रता च्छर्दिर्लाला लायोऽविपाकता॥
प्रतिश्यायोऽरुचिः कासः कफजेऽश्णोश्च शुक्लता॥1 3॥
Ma.Ni. – 2/12-13

- Feeling of covering of the body with wet clothes.
- Laziness.
- Sweetish taste in the mouth.
- Whitish discolouration of urine.
- Whitish discolouration of fecal matter.
- Stiffness of the body.
- Sensation of early satiety.
- Not too hotness on touching the body parts.
- Vomiting.
- Bodyache.
- Impaired digestion.
- Heaviness of the body parts.
- Sensation of coldness.
- Nausea.
- Horripulation.
- Excess sleep.
- Obstruction of the *Srotas* (channels).
- Mild discomfort.
- Excess salivation.
- Salt taste in the mouth.
- Rhinitis.
- Tastelessness.
- Cough.
- Whitish discolouration of the eyes.

### Vatapittaja Jvara:

तृष्णा मूर्च्छों भ्रमो दाहः स्वप्ननाशः शिरोरुजा।
कण्ठास्यशोषो वमथू रोमहर्षोऽरुचिस्तमः॥1 4॥
पर्वभेदश्च जृम्भा च वातपित्तज्वराकृतिः। Ma.Ni. – 2/14-15

- **Trishna** – thirst.
- **Murcha** – altered state of consciousness.
- **Bhrama** – giddiness.
- **Daha** – burning sensation.
- **Svapna Nasha** – loss of sleep.
- **Shiro ruja** – head ache.
- **Kantha shosha** – dryness of the throat.

- **Asya shosha** – dryness of mouth.
- **Vamathu** – vomiting.
- **Romaharsha** – horripulation.
- **Aruchi** – tastelessness.
- **Tama** – darkness in front of the eyes.
- **Parvabheda** – tearing type of pain in the joints.
- **Jrimbha** – yawning.

## Vatakaphaja Jvara:

स्तैमित्यं पर्वणां भेदो निद्रा गौरवमेव च॥15॥
शिरोग्रहः प्रतिश्यायः कासः स्वेदाप्रवर्तनम्।
संतापो मध्यवेगश्च वातश्लेष्मज्वराकृतिः॥16॥ Ma.Ni. – 2/15-16

- **Staimitya** – feeling of covering of the body with wet clothes.
- **Parva bheda** – tearing type of pain in the joints.
- **Nidra** – excess sleep.
- **Gourava** – heaviness of the body parts.
- **Shiro Graha** – stiffness of the head region.
- **Pratishyaya** – rhinitis.
- **Kasa** – cough.
- **Sveda Apravartana** – lack of sweating..
- **Santapa** – raised body temperature
- **Madhyavega** – moderate elevation of the symptoms neither too severe nor mild.

## Pittakaphaja Jvara:

लिप्ततिक्तास्यता तन्द्रा मोहः कासोऽरुचिस्तृषा।
मुहुर्दाहो मुहुः शीतं श्लेष्मपित्तज्वराकृतिः॥17॥ Ma.Ni. – 2/17

- **Lipta Tiktasyata** – coating of the tongue and bitter taste in the mouth.
- **Tandra** – drowsiness.
- **Moha** – altered state of consciousness.
- **Kasa** – cough.
- **Aruchi** – tastelessness.
- **Trisha** – thirst.
- **Muhurdaha and Muhurshita** – frequent feeling of burning sensation and coldness.

**Sannipataja Jvara:** the clinical features of *Sannipataja Jvara* is explained earlier in the present chapter.

## Jvaramukta Lakshana:

स्वेदो लघुत्वं शिरसः कण्डूः पाको मुखस्य च।
क्षवथुश्चान्नलिप्सा च ज्वरमुक्तस्य लक्षणम्॥75॥ Ma.Ni. – 2/75
विगतक्लमसंतापमव्यथं विमलेन्द्रियम्।
युक्तं प्रकृतिसत्त्वेन विद्यात् पुरुषमज्वरम्॥329॥ Ca.Ci. – 3/329
देहो लघुर्व्यपगतक्लममोहतापः पाको मुखे करणसौष्ठवमव्यथत्वम्।
स्वेदः क्षवः प्रकृतियोगिमनोऽन्नलिप्सा कण्डूश्च मूर्ध्नि विगतज्वर लक्षणानि॥ Atanka Darpana commentary, Ma.Ni. – 2/75

- **Sveda** – sweating[113].
- **Laghutva** – lightness[114] of the body.
- **Shirasah Kandu** – itching in the head region[115].
- **Mukhasya Paka** – suppuration[116] in the oral region.
- **Kshavathu** – sneezing.
- **Annalipsa** – liking towards the food.
- **Vigataklama**[117] – disappearance of the fatigue.
- **Vigata Santapa**[118] – subsidence of temperature.
- **Avyatha**[119] – disappearance of discomfort.
- **Vimalendriya**[120] – proper functioning of *Indriya*.
- **Prakriti Satva** – proper functioning of *Satva*.

**Upadrava of Jvara:** Most of the *Lakshana* mentioned in the *Upadrava* of *Jvara* are related to *Pranavaha Srotas, Rasavaha Srotas, Annavaha Srotas, Purishavaha Srotas*. In advanced stages of *Jvara*, we are going to observe excess amount of fluid loss from the body, leading to the affliction of *Udakavaha Srotas* and in most of the *Upadrava* mentioned below we are going to observe the involvement of above said *Srotas*.

---

[113] This is attributable to the deactivation of sympathetic nervous system which leads to peripheral vaso dilatation. The final outcome in this situation is excess sweating.

[114] This is attributable to the subsidence of Ama in the body. This phenomenon is usually associated with appearance of appetite.

[115] This is the specific Lakshana observed in the progression of the disease Jvara only. Whole body is having the dominance of Pitta Dosha at the time of the progression of the disease and when the disease is subsided, Pitta will be in diminished state, this in turn leads to the increase of Kapha Dosha, that too more prominently seen in Shira (head) as it is one of the Kapha Sthana and no other Kapha Sthana are involved. This is the peculiar feature of Jvara.

[116] This is attributable to the increase of Pitta because of increase of Ushna quality in the body. This Lakshana is not seen at the beginning and it is considered to be peculiar feature of Jvara. This Lakshana is typically observed in the person who is suffering from Tridosha dominant Antarvega Jvara associated with Daha (burning sensation).

[117] This is attributable to the peripheral vaso dilatation so that even the skeletal muscles receive adequate amount of blood supply and thus the person may have disappearance of fatigue.

[118] This is attributable to the reduction of vitiated Pitta in the body.

[119] All the main features of Jvara, i.e. Svedavarodha (lack of sweating), Santapa (burning sensation) and Sarvanga Grahana (stiffness of the body parts) will be subsided. There will be subsidence of vitiated Pitta too.

[120] This is attributable to peripheral vaso dilatation. This is occurring not only in the skin and even occurs in different sense organs too. This phenomenon is responsible for the proper functioning of Indriya. For example, Shrotrendriya, proper restoration of formation of perilymph and endolymph is responsible for proper hearing.

'हिक्काश्वासकासतृष्णाच्छर्यतीसारमूर्च्छाङ्गभेदारोचकाः कृच्छ्रवि- कता चेति दशोपद्रवा ज्वरमुपद्रवन्ति' इत्युक्ताः॥- Chakra, Ca.Ci. – 3/49

- **Hikka** – hiccup[121].
- **Shvasa** – breathing discomfort.
- **Kasa** – cough.
- **Trishna**[122] – thirst.
- **Chardi** – vomiting[123].
- **Atisara** – diarrhoea.
- **Murcha**[124] – altered state of consciousness.
- **Angabheda**[125] – bodyache or myalgia.
- **Arochaka**[126] – tastelessness.
- **Krichra Vitkata**[127] – difficulty in passing the bowels.

## Asadhya Lakshana of Jvara:

हेतुभिर्बहुभिर्जातो बलिभिर्बहुलक्षणः॥50॥
ज्वरः प्राणान्तकृद्यश्च शीघ्रमिन्द्रियनाशनः। Ca.Ci. – 3/50-51

*Jvara* is considered to be life threatening in the following conditions. The description of the points mentioned are explained elsewhere in the current chapter.

- If the *Jvara* is manifested due to multiple and virulent aetiological factors[128].
- If *Jvara* is associated with multiple symptoms[129].
- If *Jvara* is associated with loss of function of *Indriya*[130] in short time.

## Key summary of the chapter

स्वेदावरोधः सन्तापः सर्वाङ्गग्रहणं तथा॥13॥ विकारा युगपद्यस्मिन् ज्वरः स परिकीर्तितः। Su.Ut. – 39/13-14

- Absence of sweating, raised body temperature and stiffness of the body parts are observed either in isolation or altogether in an individual at a time is termed as Jvara. Several definitions are available in the literatures as far as the definitions of Jvara are concerned.
- Pitta Dosha is the primary Dosha afflicted in Jvara, Rasa Dhatu will be primarily involved. Naturally, we can infer the involvement of Rasavaha Srotas with Sanga and Vimargagamana as the type of Srotodushti during the progression of Jvara.

---

[121] There is a possibility of involvement of Pranavaha Srotas along with Rasavaha Srotas affliction. When an individual is presented with Upadrava it may be related to same Srotas or nearby Srotas.

[122] This is attributable to affliction of Udakavaha Srotas as there is excess Udaka Kshaya (fluid loss) in due course of time because of either Atimutrata (increased micturition) or Svedadhikya (excess sweating).

[123] If the person is suffering from fever associated with either vomiting or diarrhoea or both, there will be excess loss of water and electrolytes including sodium, potassium, calcium ions. If the condition persists for more time, the person may develop serious complications very rapidly sometimes within half to one hour.

[124] This can be attributable to reduced nutrient absorption from the alimentary canal including water and electrolytes and there will be poor blood supply to the brain due to hypovolemia.

[125] When an individual is presented with myalgia, it indicates increased muscular activity which in turn leads to increased heat production. In other words, the pathogenesis of fever is not checked.

[126] This can be attributable to the involvement of Prahavaha Srotas. This may occur as a result of poor gastrointestinal secretions or abnormal autonomic nervous system activity. Increased sympathetic activity will lead to poor oral and gastrointestinal secretion and parasympathetic nervous system stimulation will lead to enhanced oral and gastrointestinal secretion. Thus, in both occasions, the person may present with tastelessness.

[127] This is attributable to affliction of Purishavaha Srotas and this Srotas is a continuation of Mahasrotas which comprises Pranavaha, Annavaha and Purishavaha Srotas in the sequential order. This may occur as a result of poor gastrointestinal motility and hampered gastrointestinal secretion and contraction of sphincters for most of the time during progression of fever.

[128] Let us learn this concept with one example hypothetically. Suppose we have come across with three individuals A, B and C suffering from Kaphaja Jvara. Person A is having the consumption of curds for 2 days, person B is having the consumption of curds, banana for 5 days and person C is having the consumption of curds, ice cream and living in air condition room since 20 days. In all these occasions, the vitiation of Kapha Dosha is varied. In person A, there will be mild vitiation of Kapha Dosha, in person B, there will be moderate vitiation of Kapha Dosha and in person C, there will be severe vitiation of Kapha Dosha in the individuals. Accordingly, as far as management of Kaphaja Jvara is concerned, treatment of Kaphaja Jvara is becoming easier in person A when compared to B and C, and in person B, treatment is easier when compared to Kaphaja Jvara in person C, but difficult to manage when compared to person A.

[129] Let us discuss the Lakshana mentioned in the definition of Jvara and their analysis in assessment of prognosis of the disease. Svedavarodha, Santapa and Sarvangagrahana are mentioned in the definition of Jvara. When one observes only Santapa, but not Svedavarodha and Sarvanga grahana, it indicates either localised pathogenesis or milder pathogenesis or low virulence of microorganisms. When an individual is having Svedavarodha along with Santapa, it indicates peripheral vasoconstriction, it indicates the moderate pathological events in the suffering individual. If an individual is showing all the Lakshana observed in an individual, that indicates severe form of pathological events or high virulence of microorganisms etc. Suppose, if the individual is presented with above said symptoms, associated with cough or pain abdomen etc, then it indicates wide spread involvement of bodily organs suggests the much poor prognosis of the disease.

[130] When an individual is presented with loss of function of Indriya, it indicates hypovolemia where Indriya which are mostly seen in the periphery will receive minimum blood supply to channelise more blood to the core of the body – brain and heart. Thus, the person may develop hypovolemic shock or hypoglycemia or hyponatremia or dehydration.

- Vishesha Purvarupa is the special feature of Jvara which indicates the probable Dosha involved in the forthcoming type of Jvara. Atyartha Jrimbha (excess yawning) is seen as specific Purvarupa of Vataja Jvara, Nayana Daha (burning sensation around orbital region) is the specific Purvarupa of Pittaja Jvara and Anannabhinandana (lack of appetite) is the specific Purvarupa of Kaphaja Jvara.
- Vidhi Samprapti is special category of classification of Jvara or any type of disease, as it helps proper management plan of Jvara.
  - 2 types of Jvara – Sharirika and Manasika
  - 2 types of Jvara – Soumya and Agneya
  - 2 types of Jvara – Antarvegi and Bahirvegi
  - 2 types of Jvara – Sadhya and Asadhya
  - 2 types of Jvara – Ushnabhiprayaja and Shitabhiprayaja
  - 2 types of Jvara – Prakrita and Vaikrita
  - 3 types of Jvara – Ama, Pachyamana and Nirama Jvara
  - 5 types of Vishama Jvara – Santata, Satata, Anyedyushka, Tritiyaka, Chaturthaka
  - 7 types of Dhatugata Jvara – Rasadhatugata, Raktadhatugata, Mamsadhatugata, Medodhatugata, Asthidhatugata, Majjadhatugata and Shukradhatugata
  - 8 types of Jvara – Vataja, Pittaja, Kaphaja, Vatapittaja, Pittakaphaja, Vatakaphaja, Sannipataja, Agantuja
  - 13 types of Sannipataja Jvara
  - 4 types of Agantuja Jvara – Abhighataja, Abhishangaja, Abhicharaja, Abhishapaja
  - Punaravartaka Jvara – depending upon recurrence of Jvara
- Karnamulika Shotha (swelling of parotid gland) is the specific type of Upadrava seen in the patients of Sannipataja Jvara.
- Disturbances in heat regulation either increased heat production in the body or hampered heat loss from the body or both of the mechanisms are responsible for the manifestation of fever.
- **Mechanisms of heat generation:**
  - Increased basal rates of metabolisms of all the cells of the body
  - Extra rate of metabolism caused by muscular activity including muscular contraction caused by shivering
  - Extra metabolism caused by the effect of thyroxine on the cells
  - Extra metabolism caused by the effect of epinephrine, norepinephrine and sympathetic stimulation on the cells
  - Extra metabolism caused by increased chemical activity in the cells themselves, especially when the cell temperature increases
  - Extra metabolism needed for digestion, absorption and storage of food
- **Mechanisms of heat loss:**
  - Slower conduction of heat from the site of production of heat in the core to the skin
  - Slower conduction of heat from the skin to the surroundings

## Self-Assessment: Questions for Reviews

### Long essays

- Define Jvara and explain Amajvara and Nirama Jvara Lakshana
- Write Nidana, Samprapti and Bheda of Jvara. Explain Vishama Jvara
- Explain Jvara Samprapti and types of Vishama Jvara
- Discuss Sannipata Jvara
- Define Jvara and enumerate the Vidhi Samprapti of Jvara

### Short essays

- Amaja and Nirama Jvara Lakshana
- Explain Sannipataja Jvara
- Describe Samanya Samprapti of Jvara
- Describe Rasa, Rakta and Mamsa Ashrita Jvara Lakshana
- Write about Jvaramukta Lakshana
- Describe Pachyamana Jvara Lakshana
- Describe Sannipataja Jvara Upadrava

- Dhatugata Jvara
- Describe Meda, Asthi and Majja Ashrita Jvara Lakshana

## MCQs

**1. Pradhana Dosha in the manifestation of Jvara is**

a. Vata; b. Pitta;
c. Kapha; d. Rakta

*Answer*: (b)

**2. The Dosha dominance observed in Soumya Jvara is**

a. Vata;
b. Kapha;
c. Vata and/or Kapha;
d. Vata and Pitta

*Answer*: (c)

**3. Which of the following Prakrita Jvara is considered as Krichrasadhya (difficult to cure)?**

a. Prakrita Vataja Jvara;
b. Prakrita Pittaja Jvara;
c. Prakrita Kaphaja Jvara;
d. All of the above

*Answer*: (a)

**4. Karnamulika Shotha is the Upadrava of**

a. Vataja Jvara;
b. Sannipataja Jvara;
c. Antarvegaja Jvara;
d. Prakrita Vataja Jvara

*Answer*: (b)

**5. Nayana Daha is the Vishishta Purvarupa of .............. Jvara.**

a. Soumya Jvara;
b. Pittaja Jvara;
c Santata Jvara;
d. Rasadhatugata Jvara

*Answer*: (b)

**6. Dhatu involved in the manifestation of Tritiyaka Jvara is**

a. Rasa; b. Meda;
c. Rakta; d. Shukra

*Answer*: (b)

**7. The main affliction in Abhighataja Jvara is**

a. Vata Vriddhi and Rakta Kshaya;
b. Vata and Pitta vitiation;
c. Sannipata vitiation;
d. Rakta Kshaya only

*Answer*: (a)

**8. Sankhya Samprapti of Jvara is**

a. 2; b. 3;
c. 5; d. 8

*Answer*: (d)

**9. Bahumutrata (excess micturition) is the Lakshana seen in**

a. Ama Jvara;
b. Santata Jvara;
c. Rasadhatugata Jvara;
d. Soumya Jvara

*Answer*: (a)

**10. As per Madhavakara, types of Tritiyaka Jvara are**

a. 2; b. 3;
c. 4; d. 5

*Answer*: (b)

**11. Adhishthana of Jvara is**

a. Sharira;
b. Manas;
c Both Sharira and Manas;
d. None of the above

*Answer*: (c)

**12. Bahirvega Jvara is**

a. Asadhya;
b. Krichra Sadhya;
c. Sukhasadhya;
d. Unpredictable

*Answer*: (c)

**13. The Sukhasadhya Lakshana of Jvara includes**

a. Tulya Dushyata;
b. Jirnata;
c. Tulya Rtu Doshata;
d. Tulya Dosha Dushya

*Answer*: (c)

**14. Abhishangaja is a type of**

a. Doshaja Jvara;
b. Dhatugata Jvara;
c. Sannipataja Jvara;
d. Agantuja Jvara

*Answer*: (d)

**15. Asveda is the Lakshana of**

a. *Bahirvegi Jvara;*
b. Antarvegi Jvara;
c. Dhatugata Jvara;
d. Pralepaka Jvara

*Answer*: (b)

**16. The period of Vataja Sannipataja Jvara is**

a. 7 days; b. 10 days;
c. 12 days; d. Innumerable

*Answer: (a)*

**17. Vishamo Vishamarambho Kriyakalo Anushangavan is said by**

a. Charaka; b. Vagbhata;
c. Sushruta; d. Sharangadhara

*Answer: (b)*

**18. Vomiting and diarrhoea both symptoms are seen in**

a. Raktagata Jvara;
b. Majjagata Jvara;
c. Asthigata Jvara;
d. Medogata Jvara

*Answer: (c)*

**19. Jvara is considered as**

a. Kalaja Roga;
b. Aupasargika Roga;
c. Svabhavika Roga;
d. Sahaja Roga

*Answer: (b)*

**20. Jrimbha is considered as .................of Vataja Jvara.**

a. Samanya Lakshana;
b. Samanya Purvarupa;
c. Vishishta Purvarupa;
d. Upadrava

*Answer: (c)*

**21. Types of Vishama Jvara are**

a. 3; b. 2;
c. 7; d. 5

*Answer: (d)*

**22. Shukradhatugata Jvara is considered as**

a. Sukhasadhya;
b. Krichrasadhya; Yapya;
d. Asadhya

*Answer: (d)*

**23. The Dhatu involvement seen in the patient of Anyedyushka Jvara is**

a. Rakta; b. Mamsa;
c. Medas; d. Asthi and Majja

*Answer: (b)*

**24. The Dosha dominance observed in the patients of Vatabalasaka Jvara is**

a. Vata and Pitta;
b. Vata and Kapha;
c. Pitta and Kapha;
d. Vata, Pitta and Kapha

*Answer: (b)*

**25. Which of the following is true in the case of Pittaja Jvara?**

a. Pittaja Jvara in Sharat Rtu is considered as Prakrita Jvara
b. Pittaja Jvara in Vasanta Rtu is considered as Vaikrita Jvara
c. Pittaja Jvara in Sharat Rtu is considered to be Sukhasadhya in nature.
   i. a is correct
   ii. a and b are correct
   iii. a, b and c are correct
   iv. none of the above statements are correct.

*Answer: (iii)*

### Chapter resources

- https://www.zuniv.net/physiology/book/chapter21.html
- Charaka Samhita, Nidana Sthana – 1st chapter – Jvara Nidana Adhyaya
- Charaka Samhita Chikitsa Sthana– 3rd chapter – Jvara Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra – 39th chapter – Jvara Pratishedha Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.ncbi.nih.gov: PMID: 23776833; PMCID: PMC3678674: Yawning and its physiological significance by Sharat Gupta and Shallu Mittal, International Journal of Applied and Basic Medical Research: Jan-Jun 2013: 3(1): 11-15.

***

CHAPTER

18

# Masurika Romantika

## Learning Objectives

- ⇨ To understand the concept of Masurika
- ⇨ To understand the Nidana of Masurika mentioned in Ayurveda literatures
- ⇨ To learn about Samprapti of Masurika
- ⇨ To enlist the types of Masurika
- ⇨ To explain Avasthika Lakshana of Masurika
- ⇨ To enlist the features of Romantika

## Introduction

*Masurika* and *Romantika* are the spectra of diseases which are categorised under *Upasargajanya Vikara*. Here, the term *Upasarga* refers to close contact with the individual suffering from the disease. This is composed of two words – *Upa* and *Sarga*. The word *Upa* means near and *Sarga* refers to staying together. If you add these two words, the word *Upasarga* means the normal individual staying together (sitting together or performing sexual activity or eating together or sleeping together or taking the food in one plate or taking inspiration which air is being expelled out by the ill-healthy individuals or by using the clothes used by the diseased individuals) with the individual having disease having mild to severe disease. The severity of the presenting complaints depends upon the nature of *Dosha* vitiated in the body, the status of the affliction of *Dhatu* in the body, exposure of *Nidana* into the body from different orifices in the body, virulence of *Nidana* to the body, physical or mental strength of the individual at the time of affliction of the disease, the functional status of *Agni* (digestive fire) etc.

## Masurika

**दाहज्वररुजावन्तस्ताम्राः स्फोटाः सपीतकाः।**
**गात्रेषु वदने चान्तर्विज्ञेयास्ता मसूरिकाः॥** सु.नि. - 13/36

This disease[1] is associated with skin eruptions that are

---

G K

[1] The clinical features of Masurika are similar to the clinical features of chickenpox. This is a ubiquitous, extremely infectious disease. This is a benign illness of the childhood characterised by exanthematous rash.

- The incubation period of chickenpox is 10 to 21 days. On an average, 14-17 days is the usual incubation period of the highly contagious infection. Disease transmission is more efficient in temperate than in tropical climates. Patients are infectious 48 hours of the onset of the vesicular rash, during the period of vesicle formation (which generally lasts 4-5 days), and until are vesicles are crusted. 99% of the cases occur in 10 to 20 days after the exposure. A single attack of chickenpox usually confers lifetime immunity.
- Clinically, chickenpox presents as a rash, low grade fever and malaise.
- The skin lesions , the hall mark of the disease, include maculopapules, vesicles and scabs in various stages of infection. These eruptions which evolve from maculopapules to vesicles over hours to days, appear on the face and trunk and rapidly spread to other areas of the body. Most are small and have erythematous base with a diameter of 5-10 mm. Some lesions can also be found on the pharyngeal mucosa and vaginal mucosa.
- The most common complication of chickenpox is secondary bacterial superinfection of the skin. Aseptic meningitis, encephalitis, transverse myelitis, Guillain Barre Syndrome, varicella pneumonia are some other complications observed in the patients of chickenpox. Myocarditis, corneal lesions, nephritis, arthritis, bleeding diatheses, acute glomerulonephritis and hepatitis are some other complications seen in the patients of chickenpox.

Skin lesions of the patient of chickenpox

- The diagnosis of chickenpox is not difficult. The characteristic rashes and a history of recent exposure should lead to a prompt diagnosis.

associated with *Daha* (burning sensation), *Jvara* (raised body temperature), *Ruja* (pain), *Tamra Sphota* (coppery coloured skin eruptions) which may turn into *Pita Varna* (yellowish discolouration) observed in different parts of the body as well as face.

**पित्तं शोणितसंसृष्टं यदा दूषयति त्वचम्।**
**तदा करोति पिडकाः सर्वगात्रेषु देहिनः॥**
**मसूरमुद्गमाषाणां तुल्याः कोलोपमा इति।**
**मसूरिकास्तु विज्ञेयाः पिडका रक्तपित्तजाः॥**

डल्हण, सु.नि. - 13/36

- There will be dominance of *Pitta Dosha* and involvement of *Rakta* in *Tvak*
- In *Masurika*[2], skin eruptions[3] all over the body – the skin eruptions are of the size of *Masura* (lentil), *Mudga* (green gram) or *Masha* (black gram)

## Romantika

*Romantika* is a type of skin eruption. As per *Madhukosha* commentary, this is a variety of *Masurika*. It is preceded by raised body temperature followed by reddish skin eruptions. It implies the involvement of *Rasa* and *Rakta Dhatu* during the pathogenesis. This is not explained by *Sushruta*. This is explained by *Madhavakara* in the description of *Masurika*.

**रोमकूपोन्नतिसमा रागिण्यः कफपित्तजाः।**
**कासारोचकसंयुक्ता रोमान्त्यो ज्वरपूर्विकाः॥**

मा.नि. - 54/13

*Romantika*[4] is characterised by skin eruptions which arise at the root of hair follicles with slight elevation. They are red in colour. It is caused due to the dominance of *Kapha* and *Pitta Dosha*. there can be association of the symptoms like *Kasa* (cough) and *Arochaka* (tastelessness). The disease is always preceded by *Jvara* (raised body temperature).

## Causative factors of Masurika[5]

**कट्वम्ललवणक्षारविरुद्धाध्यशनाशनैः।**
**दुष्टनिष्पावशाकाद्यैः प्रदुष्टपवनोदकैः॥**
**क्रूरग्रहेक्षणाच्चापि देशे दोषाः समुद्धताः।**
**जनयन्ति शरीरेऽस्मिन् दुष्टरक्तेन सङ्गताः॥**
**मसूराकृतिसंस्थानाः पिडकाः स्युर्मसूरिकाः।**

मा.नि. - 54/1-3

- **Katu, Amla and Lavana Rasa Sevana**[6] – excess consumption of substances having pungent, sour and salt taste
- **Kshara Sevana**[7] – consumption of alkaline substances
- **Viruddha Ashana**[8] – excess consumption of antagonistic food and drinks
- **Adhyashana**[9] – consumption of food substances prior

---

[2] Replication of the virus is believed to occur initially in the epithelial cells of the mucosa of the upper respiratory tract. This disease produces widespread skin eruptions, here we can assume blood distribution and virus can be isolated from WBCs from 5 days before to 2 days after the appearance of the rash.

In case of immunocompromised patients, the inflammatory changes can occur in lung, liver, spleen, skin together with anoxic changes in the brain.

[3] The disease is characterised by generalised skin eruption with centripetal distribution; erythematous macules, papules, vesicles and scabbed lesions may be present at the same time. Vesicles are superficial with varying amounts of erythema at their bases. Adults tend to have more erythema than children. During early phase of infection, eruptions found in face, scalp and trunk. Later new lesions appear on the extremities. By this time, earlier lesions are dried and crusted. Excoriations are common. Mucous membranes of oropharynx and conjunctiva are afflicted during the progression of the disease.

[4] The clinical features of measles resemble the clinical features of Romantika. Measles is a highly contagious, acute, exanthematous respiratory disease with characteristic clinical feature and presence of Koplik's spots, eruptions observed in buccal mucosa.

[5] When the individual is exposed to above said etiological factors will lead to the reduction of overall immune status of the individual. In the following, we are going to discuss how each of the Nidana exposure may lead to abnormal changes in the body and thereby the individual is susceptible to above said etiological factors, may develop skin eruptions having the size of Masura (lentil).

[6] Katu, Amla, Lavana Rasa Sevana, Kshara Sevana, Viruddha Ahara Sevana and Adhyashana, consumption of contaminated water are the factors which lead to the vitiation of Dosha i.e. Dosha Hetu. As per Ayurveda fundamentals, these Rasa are responsible for the vitiation of Pitta Dosha in the body. These factors will weaken the physical and immunological strength of the individuals. Because of this, the individuals are susceptible for the appearance of any type of disease, some type of the infections too.

[7] As per fundamentals of Ayurveda, excess consumption of Kshara (alkaline) substances will lead to the vitiation of Pitta Dosha in the body. As per current understanding, excess consumption of alkaline substances will lead to neutralisation of the hydrochloric acid (HCl) present in gastric juice. When neutralisation of gastric juice occurs, that will lead to the hampered inactivation of pepsinogen into pepsin wherein the digestion of substances in the stomach will be hampered. Thus, the person may have digestive impairment.

[8] When an individual is continuously indulging Viriddha Ahara (incompatible food substances), that will lead to inflammation of stomach as these food substances are considered as irritants to the stomach and these substances may remain in the stomach after ingestion at least for a period of 2 hours.

- This will lead to a state of Agnimandya, i.e. poor gastric juice formation i.e. hampered HCl secretion (normal pH is 1-8 to 3.5)which in turn leads to alkalinity of gastric juice (pH > 3.5) the poor conversion of pepsinogen into pepsin; where the macromolecules entering into the stomach from the mouth at the time of ingestion, will not be converted into intermediate or micromolecules
- This will lead to poor assimilation of the micromolecules formed, as the concentration of micromolecules formed is very less. This will lead to the conversion of macromolecules present in the tissues itself.
- Thus, the person may have weaken resistance power.

[9] The term Adhyashana refers to the consumption of food substances prior to the digestion of previously ingested meal. The sequel of this type of food consumption is Agnimandya (poor digestive fire). Refer the context of Agnimandya in the context of Agnimandya and Ajirna description.

to the digestion of previously ingested meals

- **Dushta Nishpava and Shaka**[10] – regular consumption of contaminated beans, leafy vegetables
- **Pradushta Pavanodaka**[11] – continuous exposure to contaminated air and water
- **Krura Grahekshana** – bad planetary influences of certain parts of the country

## Samprapti

- There will be the vitiation of *Pitta Dosha* and *Rakta Dhatu* which circulates all over the body.
- The site of the localisation of the vitiated *Dosha* is *Tvak* (skin) leading to skin eruptions.
- Nature of skin eruption resembles *Masura* (lentil), *Mudga* (green gram) or *Masha* (black gram)

## Samprapti Ghataka

- **Dosha :** *Pitta*
- **Dushya :** *Rakta*
- **Srotas :** *Raktavaha Srotas*
- **Srotodushti :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnijanya*
- **Udbhava Sthana :** *Amashaya*[12] (as this is *Upasargaja Vikara*, first there will be appearance of discomfort, later after a period of 7 days, *Amashaya* will be *Udbhava Sthana*)
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Tvak*
- **Rogamarga :** *Abhyantara* and *Bahya* (order of the clinical manifestation of the symptoms)
- **Vyadhi Svabhava :** *Ashukari*
- **Sadhysadhyata :** *Sukhasadhya*

## Purvarupa

तासां पूर्वं ज्वरः कण्डूर्गात्रभङ्गोऽरतिर्भ्रमः।
त्वचि शोथः सवैवर्ण्यी नेत्ररागश्च जायते॥ मा.नि. - 54/4

- **Jvara**[13] : Raised body temperature
- **Kandu**[14] : Itching
- **Gatrabhanga**[15] : Pain all over the body
- **Arati**[16] : Restlessness
- **Bhrama**[17] : Giddiness
- **Tvachi Shopha**[18] : Swelling in the skin
- **Vaivarnya**[19] : Discolouration of the skin
- **Netraraga**[20]: Redness of the eyes

## Samanya Lakshana of Masurika

दाहज्वररुजावन्तस्ताम्राः स्फोटाः सपीतकाः।
गात्रेषु वदने चान्तर्विज्ञेयास्ता मसूरिकाः॥ सु.नि. - 13/36

- *Sphota*[21][22] (skin eruptions) that are associated with

---

**GK**

[10] Consumption of these substances may lead to the inflammation of the stomach as the food substances after consumtion may remain in the stomach for almost 2 hours.

[11] Here, Pradushta Pavanodaka refers to contaminated air and water. Contaminated air intake indicates the person is inhaling the air containing microorganisms or air particles. Whereas contaminated water consumption is swallowing the water having microorganisms or harmful chemicals. Exposure to contaminated air will lead to the affliction of respiratory system and contaminated water consumption may lead to affliction of alimentary canal.

[12] At the beginning before seven days of the manifestation of the disease, it is futile to give the medicine for correction of Amashaya without giving treatment for correcting Rakta as Amashaya is not afflicted in the initial phase of disease manifestation. Initially, Rakta Dhatu is afflicted and you have to give treatment for the improvement of Rakta. After 7 days, you can observe the affliction of Amashaya.

[13] As the person is having weak physical and immunological status, exposure to any degree of pathological agent, may lead to the manifestation of fever because of the interaction between the existing WBCs and pathological agents.

[14] As per western medicine, chickenpox is considered as pruritic infection. This disease involves respiratory system, integumentary system presented with running nose, cough, conjunctivitis with lacrymation, increase in fever.

[15] Pain all over the body is indicative of generalised muscular spasm leading to increase in body temperature presented to the physician with multiple bodyache.

[16] This is associated with initial phase of manifestation of fever. This can be attributable to poor blood supply to central nervous system as there is redistribution of the fluid takes place to the integumentary system.

[17] This can be attributable to increased fluid loss from the body. As far as the progression of the fever is concerned, the subsidence of fever takes place via three different routes either by urine or by sweat or by expired air. When the person is having fever, due to the increased fluid loss, he may have giddiness.

[18] This is attributable to maculo popular rashes which commence at the hairline and behind the ears, spreads down the trunk and limbs including palms and soles.

[19] The term Vaivarnya literally means discolouration of the skin. Contextually, it has to be abnormal textures of the skin. All these varieties of skin eruptions i.e. macules, papules, vesicles and pustules are observed in the individual at a particular time period.

[20] Conjunctivitis with lacrimation is one of the feature observed in the patient of chickenpox. This can be attributable to spread of infection to the eyes via nasolacrimal duct.

[21] Most of the features of Masurika are similar to the description of chickenpox. In chickenpox, the skin eruptions at a particular time vary from macule, papule, vesicle and pustule.

[22]

*Daha* (burning sensation),

- *Jvara*[23] (raised body temperature),
- *Ruja*[24] (pain),
- *Tamra Sphota*[25] (coppery coloured skin eruptions) which may turn into *Pita Varna* (yellowish discolouration) observed in different parts of the body as well as face.

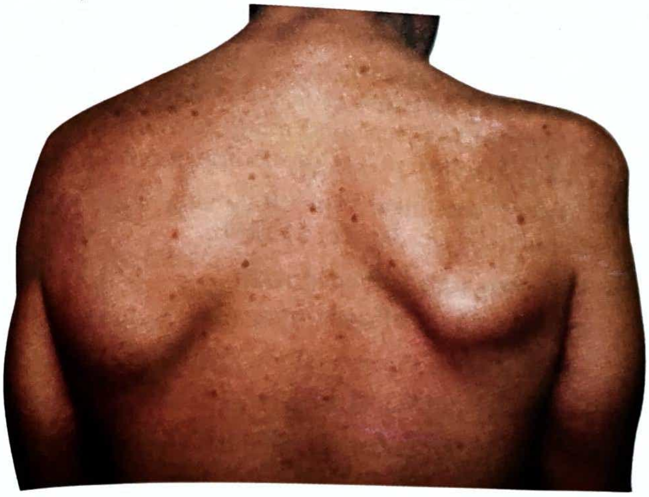


**Figure 40:** Pratyatma Lakshana of Masurika

## Types of Masurika

**8 types:** *Vataja, Pittaja, Kaphaja, Raktaja, Sannipataja, Vatapittaja, Vatakaphaja, Pittakaphaja*

**7 types:** *Rasadhatugata, Raktadhatugata, Mamsadhatugata, Medodhatugata, Asthidhatugata, Majjadhatugata, Shukradhatugata*

## Lakshana of Masurika Bheda

### Vataja Masurika

स्फोटाः श्यावारुणा रूक्षस्तीव्रवेदनयाऽन्विताः।
कठिनाश्चिरपाकाश्च भवन्त्यनिलसम्भवाः॥
सन्ध्यस्थिपर्वणां भेदः कासः कम्पोऽरतिः क्लमः।
शोषस्ताल्वोष्ठजिह्वानां तृष्णा चारुचिसंयुता॥ मा.नि. - 54/4-6

Skin eruptions which are black in colour, rough in texture, severe pain, hard on pression the lesion, delayed suppuration, associated with pain in large joints, bones and small joints; cough, tremors, restlessness, exhaustion, dryness of the palate, lips and tongue, thirst and anorexia

### Pittaja Masurika

रक्ताः पीतसिताः स्फोटाः सदाहास्तीव्रवेदनाः।
भवन्त्यचिरपाकाश्च पित्तकोपसमुद्भवाः॥
विड्भेदाश्चाङ्गमदी दाहस्तेणारुचिस्तथा।
मुखपाकोऽक्षिरागा ज्वरस्तीव्रः सुदारुणः॥ मा.नि. - 54/6-8

Skin eruptions which are red in base and yellow at the tip, associated with severe burning sensation and pain, quick suppuration, diarrhoea, general malaise, burning sensation, thirst, loss of appetite, stomatitis, redness of the eyes, high degree of fever. *Pittaja Masurika* is difficult to treat.

### Raktaja Masurika

*Raktaja Masurika* is characterised by signs and symptoms similar to those of *Pittaja Masurika.*

### Kaphaja Masurika

कफप्रसेकः स्तैमित्यं शिरोरुग् गात्रगौरवम्।
हृल्लासः सारुचिनिद्रा तन्द्रालस्य समन्विताः॥
श्वेताः स्निग्धा भृशं स्थूलाः कण्डूरा मन्दवेदनाः।
मसूरिकाः कफोत्था चिरपाकाः प्रकीर्तिताः॥ मा.नि. - 54/9-10

Excessive salivation, sensation of wetness of the body parts, headache, heaviness of the body parts, nausea along with loss of appetite, tastelessness, excessive sleep, lassitude, stupor. The skin eruptions are white in colour, slimy in texture, big in size that gives itching, mild pain. These lesions suppurate slowly.

### Tridoshaja Masurika

नीलाश्चिपिट विस्तीर्णा मध्ये निम्ना महारुजः।
चिरपाकाः पूतिस्त्रावाः प्रभूताः सर्वदोषजाः॥
कण्ठरोधरुचि स्तम्भ प्रलापारतिसंयुताः।
दुश्चिकिस्त्याः समुद्दिष्टाः पिडकाश्चर्मसंज्ञिताः॥ मा.नि. - 54/11-12

This is also being termed as *Charmapidaka*. In this type of *Masurika*, the skin eruptions are blue in colour, flat, depressed at the centre, very painful, suppurate slowly, exudes pus which is foul smell that is large in quantity; obstruction at the throat, loss of appetite, stiffness, delirium and restlessness.

### Dhatugata Masurika

### Tvak Gata Masurika:

तोयबुद्बुदसङ्काशाः त्वग्गतास्तु मसूरिकाः।
स्वल्पदोषाः प्रजायन्ते भिन्नास्तोयं स्त्रवन्ति च॥ मा.नि. - 54/14

The skin eruptions resemble like bubbles of water. It exudes thin water fluid on breaking. It is associated with signs and symptoms of vitiated *Dosha* which are mild in nature.

---

[23] As the disease is considered to be viral disease afflicting respiratory system, he may have appearance of fever.

[24] This is attributable to the myalgia which is observed as a result of increased heat production in muscular tissue.

[25] At the early stage of the infection, all the skin rashes are having erythematous base in the maculopapular rashes. Coppery coloured discolouration is commonly observed after healing of skin rashes in the patient of measles or vesicles. Yellowish discolouration in the skin is observed when the vesicles are filled with pus which is termed as pustule.

## Raktagata Masurika

रक्तस्था लोहिताकाराः शीघ्रपाकास्तनुत्वचः।
साध्या नात्यर्थदुष्टाश्च भिन्ना रक्तं स्त्रवन्ति च॥ मा.नि. - 54/15

The skin eruptions will be red and undergo suppuration quickly, the skin covering the lesion will be thin and therefore these eruptions bleed quickly after pricking. This type of *Masurika* is difficult to treat.

## Mamsagata Masurika

मांसस्था कठिनाः स्निग्धारिपाका घनत्वचः।
गात्रशूल तृषा कण्डु ज्वरारतिसमन्विताः॥ मा.नि. - 54/16

The skin eruptions are hard, slimy and suppurate slowly because the lesion is covered with thick skin. This is associated with symptoms like pain all over the body, thirst, itching, fever and restlessness.

## Medogata Masurika

मेदजा मण्डलाकारा मृदवः किञ्चिदुन्नताः।
घोरज्वरपरीताश्च स्थूलाः स्निग्धाः संवेदनाः॥
संमोहारति सन्तापाः कश्चिदाभ्यो विनिस्तरेत्॥ मा.नि. - 54/17-18

Skin erputions are round, soft, slightly elevated and big. It is slimy and painful. The patient develops high grade fever, delusion, restlessness, distress and only few persons get rid off this condition.

## Asthi Majjagata Masurika

क्षुद्रा गात्रसमा रूक्षाश्चिपिटाः किञ्चिदुन्नताः।
मज्जोत्था भृशसम्मोह वेदनारतिसंयुताः॥
छिन्दन्ति मर्मधामानि प्राणानाशु हरन्ति हि।
भ्रमरेणेव विद्धानि कुर्वन्त्यस्थीनि सर्वतः॥ मा.नि. - 54/18-20

The skin eruptions are small and are usually at the level of the skin. These are rough in touch, flat or slightly elevated. These are associated with symptoms such as delusion, pain, restlessness, cutting type of pain in vital organs, severe pain in the bones as if stung by bees. This variety of *Masurika* may take away the life of the individual.

## Shukragata Masurika

पक्वाभाः पिडका स्निग्धाः सूक्ष्माश्चात्यर्थवेदनाः।
स्तैमित्यारतिसंमोहदाहोन्माद समन्विताः॥ मा.नि. - 54/20-22

Skin eruptions which are ripe, slimy, minute in structure, severe pain associated with feeling of covering of wet clothes over the body parts, restlessness, delusion, burning sensation and death is certain.

## Sadhyasadhyata

- *Rasadhatugata, Raktadhatugata, Pittaja, Kaphaja* and *Kapha Pittaja* varieties of *Masurika* are easily curable.
- *Vataja, Vata Pittaja, Kapha Vataja* varieties are difficult to cure. These varieties should be treated with great effort and care.
- *Sannipataja* variety of *Masurika* is incurable. Signs and symptoms of *Sannipataja Masurika* are development of skin eruptions which resemble either colour of coral beads of fruits of *Jambu* or like an iron sieve or like fruits of *Atasi* and many such colours which usually manifest due to the combination of *Doshas*.

**Upadrava of Masurika:** The following *Lakshana* are considered to be *Upadrava* of *Masurika*.

मसूरिकान्ते शोथः स्यात् कूर्परे मणिबन्धके।
तथांऽसफलके चापि दुश्चिकित्स्यः सुदारुणः॥ मा.नि. - 54/31

- Swelling in the *Kurpara* (elbow) region
- Swelling in the *Manibandha* (wrist) region
- Swelling in the *Amsaphalaka* (shoulder) region[26]

## Introduction

*Romantika* is a type of skin eruption. As per *Madhukosha* commentary, this is a variety of *Masurika*. It is preceded by raised body temperature followed by reddish skin eruptions. It implies the involvement of *Rasa* and *Rakta Dhatu* during the pathogenesis. This is not explained by *Sushruta*. This is explained by *Madhavakara* in the description of *Masurika*.

रोमकूपोन्नतिसमा रागिण्यः कफपित्तजाः।
कासारोचकसंयुक्ता रोमान्त्यो ज्वरपूर्विकाः॥ मा.नि. - 54/13

*Romantika*[27] is characterised by skin eruptions which arise at the root of hair follicles with slight elevation. They are red in colour. It is caused due to the dominance of *Kapha* and *Pitta Dosha*. there can be association of the symptoms like *Kasa* (cough) and *Arochaka* (tastelessness). The disease is always preceded by *Jvara* (raised body temperature).

मसूरिकायाः प्रकारं रोमान्तिकामाह - रोमकूपोन्नतिसमा इत्यादि।
रागिण्य इति लोहिताः, ज्वरपूर्विका इति ज्वरपूर्वरूपाः॥

मधु, मा.नि. 54/13

- **मसूरिकायाः प्रकारं रोमान्तिकामाह - रोमकूपोन्नतिसमा इत्यादि।**- This is a variety of *Masurika*. In this disease, there will be elevations in the skin, at the root of hair follicles in particular.
- **रागिण्य इति लोहिताः** – the colour of skin eruptions is red in colour

---

[26] The swellings observed in these areas is considered to be difficult to cure or it may take longer time.

[27] The clinical features of measles resemble the clinical features of Romantika. Measles is a highly thematous respira-
tory disease with characteristic clinical feature and presence

- ज्वरपूर्विका इति ज्वरपूर्वरूपाः – *Romantika*[28] is usually associated with *Jvara* (raised body temperature) as premonitory symptom.

| Clinical feature | Dosha involved | Dushya involved | Srotas involved |
|---|---|---|---|
| Kasa | Vata and Kapha | Rasa | Pranavaha and Rasavaha |
| Arochaka | Kapha | Rasa | Annavaha/ Rasavaha |
| Jvara | Pitta | Rasa | Rasavaha |
| Saraga Romakupa Unnati | Pitta and Kapha | Rasa and Rakta | Rasavaha and Raktavaha |

## Samprapti Ghataka

- **Dosha involved :** *Kapha, Pitta, Vata* in the order of clinical presentation
- **Dushya involved :** *Rasa, Rakta*
- **Srotas involved :** *Pranavaha, Annavaha, Rasavaha, Raktavaha*
- **Srotodushti Prakara:** *Sanga, Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Mahasrotas* and *Rasadhatu*
- **Udbhava Sthana :** *Amashaya* (as this disease is *Upasargaja Vikara*, first there will be appearance of discomfort and *Amashaya* will be *Udbhava Sthana* after a period of 7 days)
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Tvak*
- **Rogamarga :** *Abhyantara, Bahya* in the order of clinical presentation
- **Vyadhyavastha :** *Ashukari*
- **Sadhyasadhyata :** *Sukhasadhya*

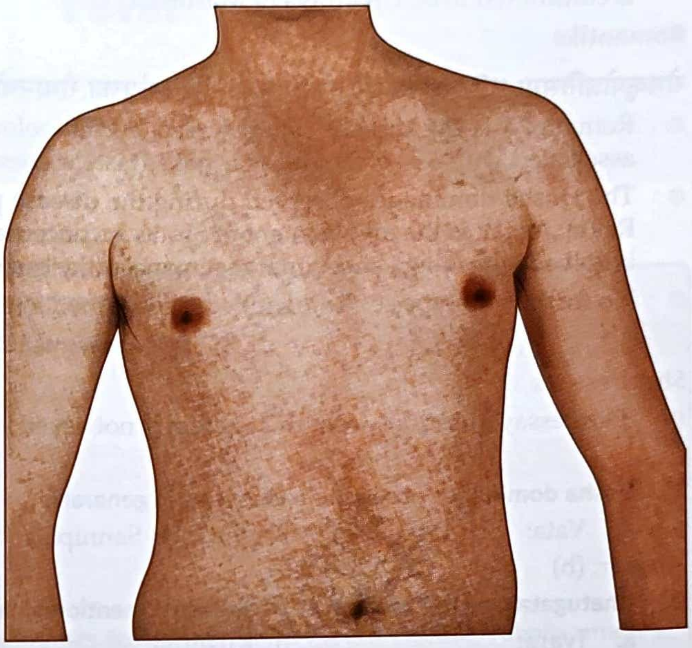


**Figure 41:** Clinical features of measles

**Key summary of the chapter Masurika**

दाहज्वररुजावन्तस्ताम्राः स्फोटाः सपीतकाः। गात्रेंषु वदनें चान्तर्विज्ञेंयास्ता मसूरिकाः।। सु.नि. - 13/36

- This is Upasargajanya Vikara. This is associated with skin eruptions that are associated with burning sensation, fever, pain and coppery coloured skin eruptions which may turn into yellowish discolouration observed in different parts of the body and face.
- This is associated with Pitta Dosha vitiation and Rakta Dhatu involvement.
- Purvarupa of Masurika are fever, itching, bodyache, restlessness, giddiness, swelling of the skin, discolouration and redness of the eyes.

तासां पूर्वं ज्वरः कण्डूर्गात्रभङ्गोऽरतिर्भ्रमः। त्वचि शोथः सवैवण्यी नेंत्ररागश्च जायतें।। मा.नि. - 54/4

- Samanya Lakshana of Masurika are burning sensation, fever, discomfort, coppery coloured skin eruptions, yellowish coloured blisters formation in the body parts and face.

दाहज्वररुजावन्तस्ताम्राः स्फोटाः सपीतकाः। गात्रेंषु वदनें चान्तर्विज्ञेंयास्ता मसूरिकाः।। सु.नि. - 13/36

---

[28]
- Measles is caused by RNA virus measles virus. Measles virus invades respiratory epithelium and spreads via blood stream to the reticuloendothelial system from which it infects the white blood cells leading to infection of the skin, respiratory tract and other organs.
- Measles begins with a 2 to 4 days of malaise, running nose, cough, conjunctivitis, lachrymation along with fever. At this stage, the skin rashes will not appear and the features mimic the features of influenza. Just before the appearance of skin rashes, the person will have 1-2 mm sized bluish white spots on the buccal mucosa on a bright red background. Koplik's spots are seen alongside the second molars.
- Later, the person may have erythematous, nonpruritic, maculopapular rashes begin at the hairline and behind the ears, later spreads down the trunk and limbs to include the palms and soles. By 4th day of appearance of rash, the skin rashes appear to fade in the order in which they appeared. Brownish discolouration of skin and desquamation may appear later. Fever subsides 4th or 5th day of appearance of rash.
- Prolonged fever may be the complication of measles. Lymphadenopathy, diarrhoea, vomiting and splenomegaly are common features observed in measles.

- Types of Masurika are 8 types based on the Dosha dominance – Vataja, Pittaja, Kaphaja, Sannipataja, Vatapittaja, Pittakaphaja, Vatakaphaja and 7 types based on the involvement of Dhatu – Rasadhatugata, Raktadhatugata, Mamsadhatugata, Medodhatugata, Asthidhatugata, Majjadhatugata, Shukradhatugata. Among these types, Rasadhatugata, Raktadhatugata, Pittaja, Kaphaja and Kaphapittaja varieties of Masurika are Sukhasadhya (easily curable); Vataja, Vatapittaja, Kaphavataja varieties of Masurika are Krichrasadhya (difficult to cure) and Sannipataja variety of Masurika is Asadhya (incurable).
- If the swelling is seen in Kurpara (elbow), Manibandha (wrist) and Amsaphalaka (shoulder) joints, then Lakshana is considered to be Upadrava of Masurika.

## Romantika

मा.नि. - 54/13

रोमकूपोन्नतिसमा रागिण्यः कफपित्तजाः। कासारोचकसंयुक्ता रोमान्त्यो ज्वरपूर्विकाः॥

- Romantika is the disease characterised by red coloured skin eruptions which arise at the root of hair follicles associated with Kasa (cough), Arochaka (tastelessness) and Jvara (raised body temperature).
- The Dosha dominance observed during the disease progression are Kapha and Pitta. This disease involves Rasa, Rakta. As far as the involvement of Srotas is concerned Pranavaha, Annavaha, Rasavaha and Raktavaha Srotas are involved with Sanga and Vimargagamana as the type of Srotodushti afflicted during the progression of the disease.
- No further subtypes of Romantika are explained in any of the Ayurveda textbooks.

## Self-Assessment: Questions for Review

### Short essays

- Short essay questions from this section is not asked

### MCQs

**1. Dosha dominance observed in Masurika in general is**

a. Vata; b. Pitta; c. Kapha; d. Sannipata

*Answer:* (b)

**2. Dhatugata Avastha as the type of disease is mentioned in**

a. Jvara; b. Kushtha;
c. Masurika; d. All of the above

*Answer:* (d)

**3. Vataja type of Masurika is considered to be**

a. Sukhasadhya; b. Krichrasadhya;
c. Asadhya; d. Pratyakhyeya

*Answer:* (b)

**4. The type of skin lesion in Masurika is having**

a. Aruna Varna; b. Tamra Varna;
c. Shveta Varna; d. Pita Varna

*Answer:* (b)

**5. Sankhya Samprapti of Masurika is**

a. 7 types; b. 6 types;
c. 4 types; d. 13 types

*Answer:* (a)

**6. Dosha dominance in the manifestation of Romantika is/are**

a. Vata and Pitta; b. Kapha and Pitta;
c. Vata and Kapha; d. Vata, Pitta and Kapha

*Answer:* (b)

**7. Dhatu involved in the manifestation of Romantika is/are**

a. Rasa; b. Rakta;
c. Rasa and Rakta; d. Shukra

*Answer:* (c)

**8. Romantika is a type of**

a. Shvitra; b. Masurika; c. *Kaksha*; d. *Visarpa*

*Answer:* (b)

**9. Koplik's spots are pathognomonic of**

a. Chickenpox;
b. Measles;
c. Smallpox;
d. Ramsay Hunt syndrome

*Answer:* (b)

**10. Koplik's spots are seen in which part of the body?**

a. Skin; b. Nasal mucosa;
c. Oral mucosa; d. Anal mucosa

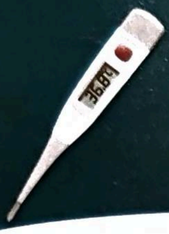
*Answer:* (c)

## Chapter resources

- Madhava Nidana – 54th chapter, Masurika Nidana
- Yoga Ratnakara – Masurika Nidana
- Madhava Nidana 54th chapter: Masurika Nidana
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Harrison's principles and practice of internal medicine by Anthony S Fauci et al, 17th edition, McGraw Hill Publications, New York, 2008
- www.bing.com

***

# CHAPTER
# 19



# Fever

## Learning Objectives

- ⇨ To learn the exact meaning of normal temperature and fever
- ⇨ To learn about core temperature and its mechanism
- ⇨ To learn about the recording of the temperature
- ⇨ To learn about the stages of fever
- ⇨ To learn about the types of fever
- ⇨ To learn about the clinical causes of fever
- ⇨ To learn about the pathophysiology of fever
- ⇨ To know about the clinical features of measles, chickenpox, herpes zoster, hand foot mouth disease, rubella, malaria, filariasis, flu, dengue, leptospirosis, chikungunya, typhoid, other regional disorders with fever
- ⇨ To know about the organisms, incubation period and mode of transmission
- ⇨ To know about common regional disorders with fever complications

The term fever refers to the pathological mechanism where in raised body temperature is seen.

**Normal temperature control:** The ability of human beings to maintain a stable body temperature depends on the control of heat regulating centre situated in the hypothalamus. Neurons in both the preoptic anterior hypothalamus and the posterior hypothalamus receive two kinds of signals: one from peripheral nerves that transmit the information from warmth/ cold receptors in the skin and the other from the temperature of the blood bathing region. These two types of signals are integrated by the thermoregulatory centre of the hypothalamus to main normal temperature. The core temperature is regulated at a set point which differs in individuals, but which is usually between 37.0° C and 37.5° C regardless of race and geography. Body temperature however does not remain absolutely constant throughout the day and all individuals have circadian rhythm with evening temperatures 0.5° – 1.0° C higher than the recording observed in the morning. This daily rhythm is consistent with each individual and is independent of the environment.

In a neutral temperature environment, the metabolic rate of humans produces more heat than is necessary to maintain the core body temperature at 37.0° C.

## Clinical thermometer

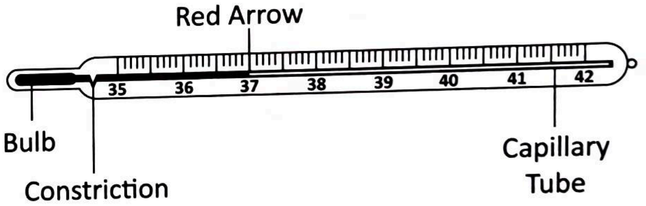


Figure 42: Clinical thermometer with labelling

**Figure 43:** Infrared clinical thermometer:

- A clinical thermometer with Fahrenheit or Celsius scale is used.
- The thermometer should be of reliable make and certified as accurate.

- It should be kept in situ for a period of 2-3 minutes
- The temperature can be recorded oral (keeping the thermometer in the mouth); axillary (in the anterior fold of axillary region); inguinal (in the groin region in case of infants) and rectal (in the rectum). Oral and axillary temperatures are practiced in adults and groin and rectal temperatures are recorded in infants.

### Measurement of body temperature:

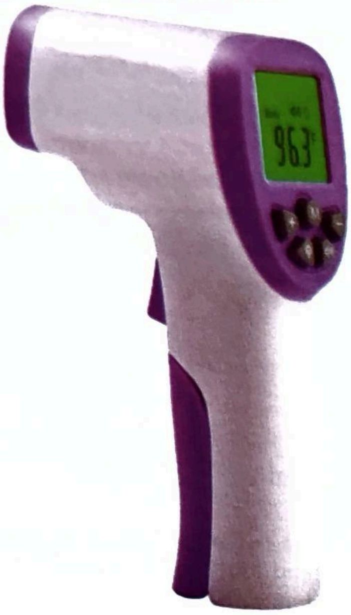


**Figure 44:** Temperature gun

- While taking the oral reading, the mouth must be closed while breathing should be done through nose. While recording axillary reading, the sweat from the axillary region present in the anterior axillary fold should be wiped out before keeping the mercury bulb of clinical thermometer.
- The mercury should be well shaken down before using the thermometer and mercury level should be below the arrow mark of the clinical thermometer.
- To determine the type of fever, temperature is recorded every 4-6 hours.

**Normal temperature:** measurements of oral temperature are about 0.4° C and axillary temperatures upto 1.0° C below core temperature. Both of the recordings are more accurate methods than rectal readings which are affected by heat generated by faecal bacteria.

## Pathological mechanism of fever

Types of fever: In the past, much emphasis is being given to determine the pattern of the fever.

- If the fever does not touch normal at all, diurnal fluctuations of temperature are within 1.5° F, then such type of fever is termed as continuous fever.
- If the fever does not touch normal at all, diurnal fluctuations of temperature exceed 1.5° F, then such type of fever is termed as remittent fever.
- A fever which touches normal for a few hours during the day is called as intermittent, hectic or septic fever
    - Intermittent fever which occurs daily is termed as quotidian fever
    - Intermittent fever which occurs every alternate days is termed as tertian fever
    - Intermittent fever which occurs every 4th day is termed as quartan fever
    - Intermittent fever which does not follow any of the above patterns is termed as irregular fever
    - A fever occurring in bouts lasting for days with afebrile phases is called as relapsing or periodic fever

**Stages of fever:** in the course of fever, four stages of fever can be recognised.

1. **Prodromal stage:** this stage may be absent
2. **Stage of onset or invasion:** (initial or pyrogenetic phase): associated with initial phase of fever. The onset of fever may be insidious (gradual) or at times step ladder type in case of typhoid or abrupt or sudden as in lobar pneumonia
3. **Stage of full development (stage of fastigium):** full blown symptoms of fever are seen
4. **Stage of decline (stage of defervescence or termination):** subsidence of the symptoms of fever are observed. The termination or fall of fever may be sudden (by crisis) as in pneumonia or gradual (by lysis) as in typhoid fever.

### Accompaniments of fever:

- A sudden raise in temperature is accompanied by rigor or chills as in adults and by convulsions as in children. Chills or rigors are commonly observed in pyelonephritis, lobar pneumonia, malaria, infective endocarditis.
- Recurrent rigors can occur in septicemia, pyemia and bile duct or liver sepsis.
- Depending on the area or site of pathological process occurring in the body, the symptoms may vary related to affected systemic function. For example, cough is the accompanying symptom in the person who is having fever due to respiratory involvement.

### Clinical causes:

- Infections: bacterial, viral, ricketssial, spirochaetal, protozoal, fungal.
- Neoplasms
- Allergic disorders
- Collagen vascular diseases
- Collection of pus

- Drugs
- Sarcoidosis or other granulomatous disorders
- Heat fever
- Miscellaneous – inflammatory bowel disease or pulmonary emboli

## Mechanism of temperature and fever

Temperature[1] will be raised in the individuals because of two major reasons, namely increased heat production from the body and decreased heat loss from the body.

Increased heat generation can occur because of the following reasons.

1. Increased basal rate of metabolism of all cells of the human body
2. Extra rate of metabolism caused by muscular activity, including muscular contractions caused by shivering
3. Extra metabolism caused by the effect of thyroxine
4. Extra metabolism caused by the effect of epinephrine, norepinephrine and sympathetic stimulation on cells
5. Extra metabolism caused by the increased chemical activity inside the cells, especially when the cellular temperature increases
6. Extra metabolism needed for digestion, absorption and storage of food (thermogenic effect of food)

**Reduced heat loss from the body:** Heat loss from the body occurs in the skin, expired air and urine. As far as physics of heat loss is concerned, loss of heat can occur in three methods radiation, conduction and evaporation.

**Radiation:** loss of heat by radiation means loss in the form of infrared heat rays, a type of electromagnetic wave. The human body radiates heat rays in all directions. Heat rays are also being radiated from walls of rooms and other objects toward the body. If the temperature of the body is greater than the temperature of the surroundings, a greater quantity of heat is radiated from the body than is radiated to the body.

**Conduction:** only minute quantities of heat, about 3%, are normally lost from the body by direct conduction from the surface of the body to the solid objects connected to the body such as chair or bed. Loss of heat by conduction of heat to air represents about 15% of the heat loss under normal conditions.

Another way of conduction is convection. This is removal of heat from the body by convection air currents is termed as heat loss by convection. In this way of heat loss, first there will be conduction of heat to the air followed by heat loss by convection air currents.

**Evaporation:** When water evaporates from the body surface, 0.58 Calorie (kilocalorie) of heat is lost for each gram of water that evaporates. As per physiologists, water evaporates 600 to 700 ml/ 24 hours from the skin and lungs. This causes continual heat loss at a rate of 16 to 19 Calories/ hour. Anything that prevents adequate evaporation when the surrounding temperature is higher than the skin temperature will cause the internal body temperature to rise.

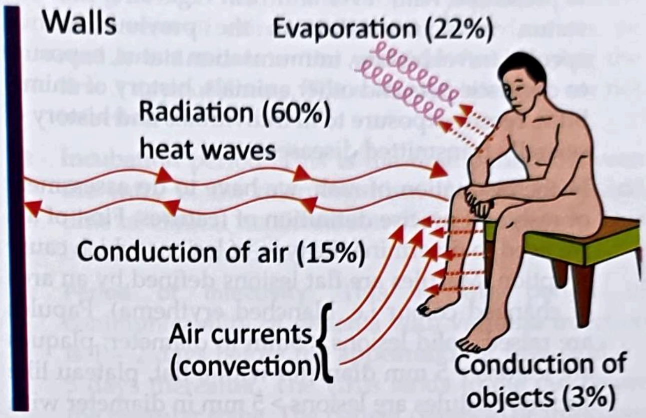


**Figure 45:** Mechanism of temperature loss from the body

**Source:** Guyton's physiology, the present image shows the person in disrobed condition, and percentage of heat loss in closed room in radiation, conduction and evaporation.

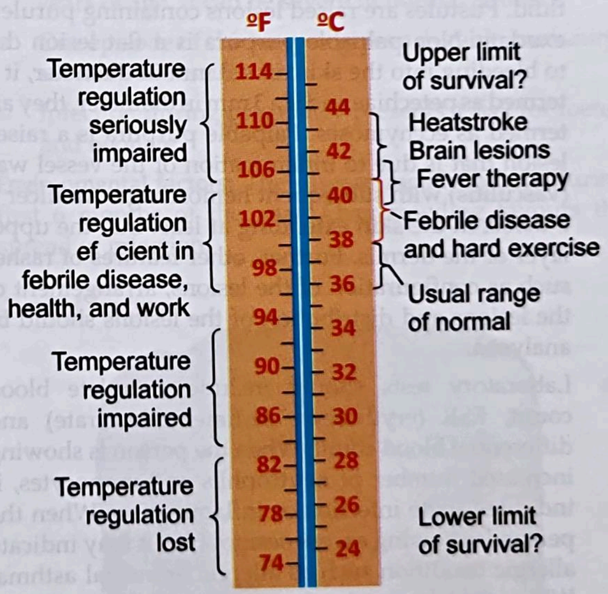


**Figure 46:** Temperature variations observed in the body

Mechanism of temperature variations under various conditions

## Approach to the patient of fever

- Attention must be paid to the chronology of the events and associated symptoms and signs of fever to accurate diagnosis. For example, if the person is presented with headache, running nose, cough and fever, it may indicate the respiratory infection. If the person is presented with epigastric pain, vomiting and fever, it may indicate the upper alimentary canal infection.

---

[1] Whenever, there is increase of temperature either due to increased heat production or reduced heat loss, we can infer the vitiation or abnormal increase of Pitta Dosha in the body as primary Dosha affliction. This may occur as a result of increase of Ushna, Tikshna qualities in the body.

- A thorough history must be taken when the person is presented with fever and rash regarding immune status, medicines taken in the previous month, specific travel history, immunisation status, exposure to domestic pets and other animals, history of animal bites, recent exposure to ill individuals and history of sexually transmitted diseases.
- In the evaluation of rash, we have to do assessment of rash and precise definition of features. First of all, we need to determine the type of lesions which cause eruption. Macules are flat lesions defined by an area of changed colour i.e. blanched erythema). Papules are raised, solid lesions < 5mm in diameter; plaques are lesions > 5 mm diameter with a flat, plateau like surface; nodules are lesions > 5 mm in diameter with a more rounded configuration. Wheals are papules or plaques that pale pink and may appear annular (ring like) as they enlarge and may lasting only 24 – 48 hours in any defined area. Vesicles (< 5 mm) and bullae (>5mm) are circumscribed, elevated lesions containing fluid. Pustules are raised lesions containing purulent exudate. Non palpable purpura is a flat lesion due to bleeding into the skin; if < 3 mm in diameter, it is termed as petechiae and if > 3 mm in diameter, they are termed as ecchymoses. Palpable purpura is a raised lesion that is due to inflammation of the vessel wall (vasculitis) with subsequent hemorrhage. An ulcer is a defect in the skin extending at least into the upper layer of the dermis. Further, other features of rashes such as configuration of the lesions, arrangement of the lesions and distribution of the lesions should be analysed.
- Laboratory tests should include complete blood count, ESR (erythrocyte sedimentation rate) and differential blood count. When the person is showing increased number of neutrophils and monocytes, it indicates acute infection or inflammation. When the person is showing excess oesinophils, it may indicate allergic condition such as allergic bronchial asthma. When the person is showing rapid ESR, it may indicate acute infection. When the person is having ESR more than 100 mm in 1st hour, it may indicate chronic infection such as tuberculosis.
- When the person is presented with burning micturition, we have to advise the urinalysis. When the person is presented with cough and yellowish sputum, one has to advise sputum test etc.
- When the person is presented with fever persisting for 3 weeks with 1 week of intelligent and invasive investigation, the physician has to repeat the history and physical examination. This status is termed as FUO (fever of unknown origin) or PUO (pyrexia of unknown origin).
- Laboratory testing include in PUO are complete blood count, differential blood count, peripheral smear, ESR, urinalysis, liver function test (LFT), HIV, VDRL, serum creatinine, serum electrolytes. Depending upon the nature of clinical presentation, one has to advise the cultures of blood, urine, sputum and other fluids such as semen, vaginal swab etc. If no proper diagnosis is possible, then one has to go for non invasive techniques such as CT scan and invasive techniques such as needle biopsy or laparoscopy.

## Measles

Measles is a highly contagious, viral infection that is most commonly seen in children. This is characterised by fever, cough, running nose, conjunctivitis, enanthem (Koplik's spots) on the buccal or labial mucosa and maculopapular rashes that spread cephalocaudally. Diagnosis is usually clinical.

- This is caused by paramyxovirus. This is extremely communicable. This is spread mainly by secretions from the nose, throat and mouth during the prodromal stage or early eruptive stage. Communicability begins several days before and continues until several days after the rash appears. Measles is not communicable once the rash begins to desquamate.
- Incubation period: 7 to 14 days; transmitted by respiratory droplets.

### Clinical features

- Fever, running nose, hacking cough and tarsal conjunctivitis commences during initial phase of the infection.

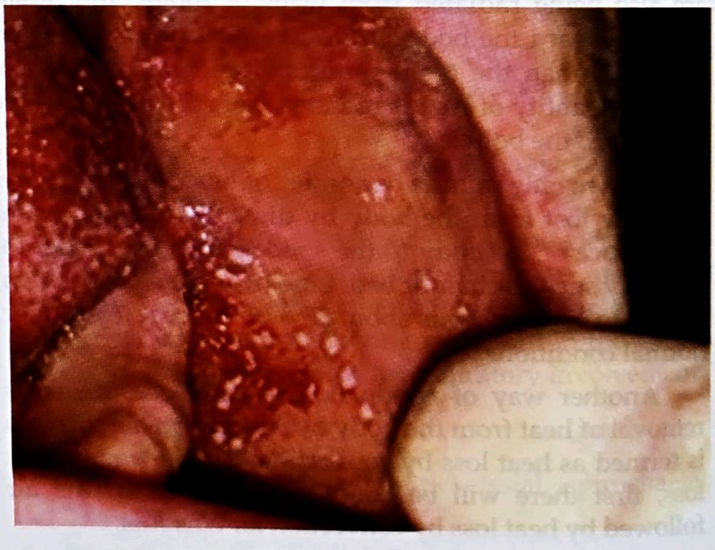


**Figure 47:** Koplik spots in measles

- Koplik's spots **(see Figure 47)** appear 2 to 4 days later on the buccal mucosa opposite to the 1st and 2nd upper molars. The spots resemble grains of white sand surrounded by red areolae. They may be extensive, producing diffuse mottled erythema of the buccal mucosa. Sore throat develops during the progression.

- The rashes **(see Figure 48)** appear 3 to 5 days after symptom onset, usually 1 to 2 days after the appearance of Koplik's spots. It begins on the face in front of and below the ears and on the sides of the neck as irregular macules, soon mixed with papules. Within 24 to 48 hours, lesions spread to the trunk and extremities (including palms and soles) as they begin to fade on the face.

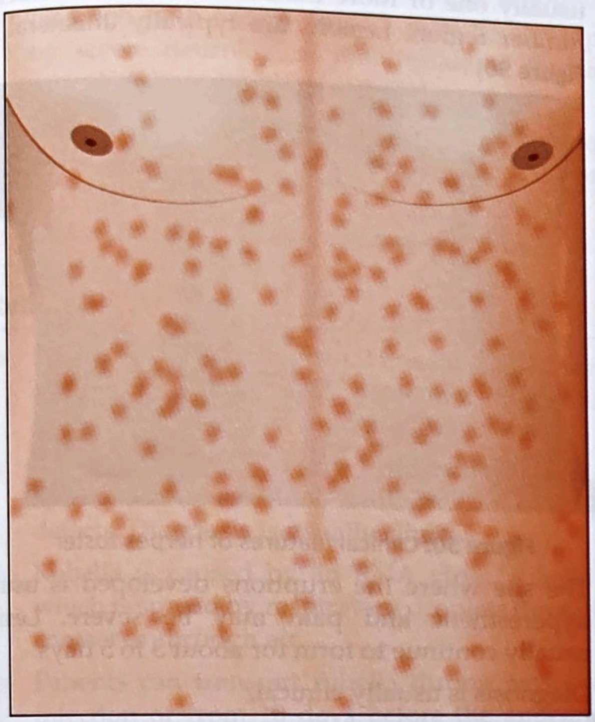


**Figure 48:** Clinical features of measles

- During peak disease severity, the patient may have raised body temperature > 40° C, with periorbital oedema, conjunctivitis, photophobia, hacking cough, extensive rash and mild itching.
- In 3 to 5 days, fever falls, the patient feels more comfortable, and rash fades rapidly with coppery brown discolouration followed by desquamation.
- Diagnosis is done by clinical evaluation, serological testing, viral detection via culture or reverse transcription PCR
- Differential diagnosis includes rubella, scarlet fever, drug rashes, serum sickness, infectious mononucleosis.

## Chicken Pox

Chickenpox or varicella is an acute, highly infectious disease caused by varicella zoster (V-Z) virus. It is characterized by vesicular rashes that may be accompanied by fever and malaise. It is world-wide in distribution and occurs in both epidemic and endemic forms.

### Agent factors

- Varicella zoster virus also called as human (alpha) herpes virus 3. Primary infections cause chickenpox leading to painful, vesicular, pustular eruption in the distribution of one or more sensory nerve roots.
- Source of infection is usually a patient of chickenpox. The virus occurs in the oropharyngeal secretions and lesion of skin and mucosa. The virus can be readily isolated from the vesicular fluid during the first 3 days of illness. The scabs are however are not infective.
- Incubation period: This is the time period between the entry of the microorganism into the body and time of clinical manifestation of the symptoms. This is usually 14 to 16 days.
- **Period of infectivity:** This is the period of communicability of patients with varicella infection is 1 – 2 days before the appearance of rash, and 4 – 5 days thereafter. The virus tends to die out before the pustular stage. The patient ceases to be infectious once the lesions have crusted.

### Host factors

- Chickenpox occurs primarily in children under 10 years of age. It can be severe in normal adults.
- One episode of chickenpox gives a durable immunity; second attacks are rare.
- Infection during pregnancy presents a risk for foetus and neonate.

**Environmental factors:** The disease mostly occurs during first 6 months of the year. Overcrowding favours the spread of infection.

### Clinical features

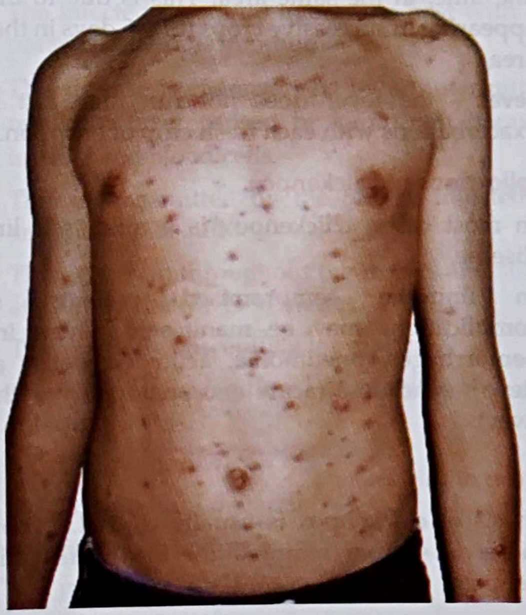


**Figure 49:** Clinical features of chicken pox

- The clinical spectrum of the chickenpox may vary from a mild illness with only a few scattered lesions to a severe febrile illness with widespread rash. It is divided into two stages: Pre eruptive stage and eruptive stage.
  - ➤ **Pre eruptive stage:** Onset is sudden with mild or moderate fever, pain in the back, shivering and malaise. This stage is very brief, lasting about 24 hours. In adults, the prodromal illness is usually more severe and may last for 2-3 days before the rash comes out.
  - ➤ **Eruptive stage:** In children, the rash is often the first sign. It comes on the day the fever starts. The characters of the rash are
- **Distribution** – The rash is symmetrical. It first appears on the trunk where it is abundant, and then comes on the face, arms and legs where it is less abundant. Mucosal surfaces – buccal and pharyngeal are generally involved. Axilla may be affected, but palms and soles are not usually affected. The density of the eruption diminishes centrifugally.
- **Rapid evolution** – the rash advances quickly through the stages of macule, papule, vesicle and scab. The first rash which attract attention are often the vesicles filled with clear fluid and looking like dew-drops on the skin. They are superficial in site, with easily ruptured walls and surrounded by an area of inflammation. Usually they are not umbilicated. The vesicles may form crusts without going through pustular stage. Scabbing begins 4-7 days after the appearance of rash.
- **Pleomorphism** – A characteristic feature of chickenpox is pleomorphism, i.e. all stages of the rashes (papules, vesicles and crusts) may be seen simultaneously at one time, in the same area. This is due to the rash appearing in successive crops for 4-5 days in the same area.
- **Fever** – the fever does not run high but shows exacerbations with each fresh crop of eruption.

### Complications of chickenpox

- In most cases, chickenpox is a mild, self limiting disease.
- In immune compromised patients, severe complications may be manifested. These include hemorrhages, pneumonia, acute cerebellar ataxia, Reye's syndrome (acute encephalopathy with fatty liver).

### Diagnosis of chickenpox

Diagnosis of chickenpox is usually clinical. Laboratory diagnosis is seldom required for the confirmation of chickenpox.

## Herpes Zoster

Herpes zoster is infection that results when varicella zoster virus reactivates from its latent state in a posterior dorsal root ganglion. Symptoms usually begin with pain along the affected dermatome, followed in 2 to 3 days by a vesicular eruption that is usually diagnostic.

- Lancinating, dysesthetic or other pain develops in the involved site followed in 2 to 3 days by a rash, usually crops of vesicles on an erythematous base. The site is usually one or more dermatomes in the thoracic or lumbar region. Lesions are typically unilateral **(see Figure 50)** .

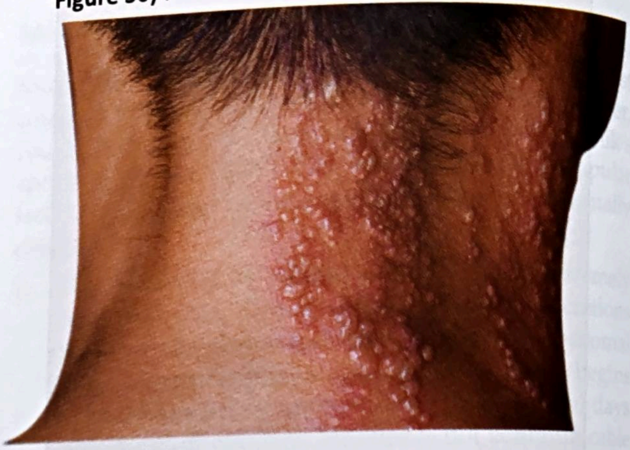


**Figure 50:** Clinical features of herpes zoster

- The site where the eruptions developed is usually hyperesthetic and pain may be severe. Lesions usually continue to form for about 3 to 5 days.
- Diagnosis is usually clinical.

## Hand Foot Mouth Disease

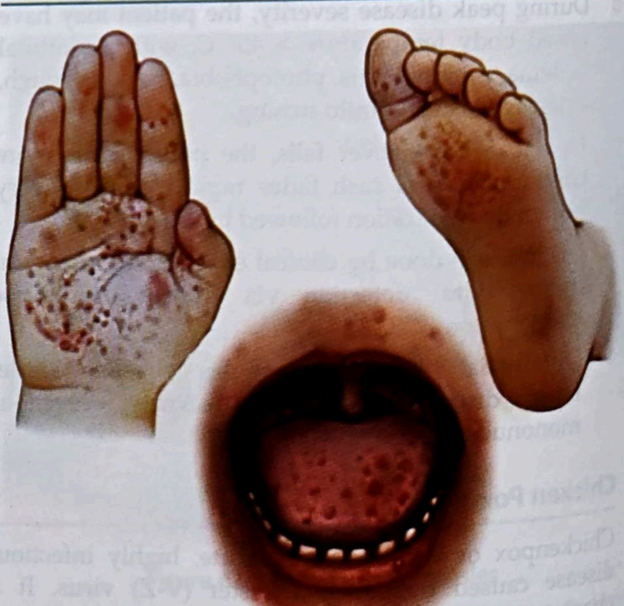


**Figure 51:** Clinical features of hand, foot and mouth disease

Hand-foot and mouth disease **(see Figure 51)** is a febrile disorder usually caused by coxsackie virus A16, enterovirus 71 or other enteroviruses. Infection causes a vesicular eruption of skin and mucosa.

- The disease is most common in young children.
- Children may have sore throat or pain in the mouth and they may refuse to eat. Fever is common.
- Vesicles are distributed over the buccal mucosa and tongue, hands and feet and occasionally buttocks and genitals. Usually vesicles are benign and short lived.
- Infection with enterovirus 71 may be accompanied by severe neurological manifestations (meningitis, encephalitis, polio like paralysis).
- Morbidity and mortality are significantly higher with enterovirus 71 than with coxsackie virus A16 or other enteroviruses.
- Diagnosis of the disease is done clinically.

## Rubella

- Rubella is a contagious viral infection that may cause adenopathy, rash and sometimes constitutional symptoms, which are mild and brief.
- Infection during early pregnancy can cause spontaneous abortion, stillbirth and congenital defects. Diagnosis is usually clinical.
- Rubella is caused by an RNA virus, rubella virus, which is spread by respiratory droplets through close contact or through air.
- Patients can transmit rubella during asymptomatic infection or from 10 days before the appearance of rash until 15 days after onset of rash.
- Congenitally infected infants may transmit rubella for many months after birth.
- Rubella is less contagious than measles. Immunity appears to be lifelong after natural infection.
- Incubation period: 14 to 21 days

### Clinical features

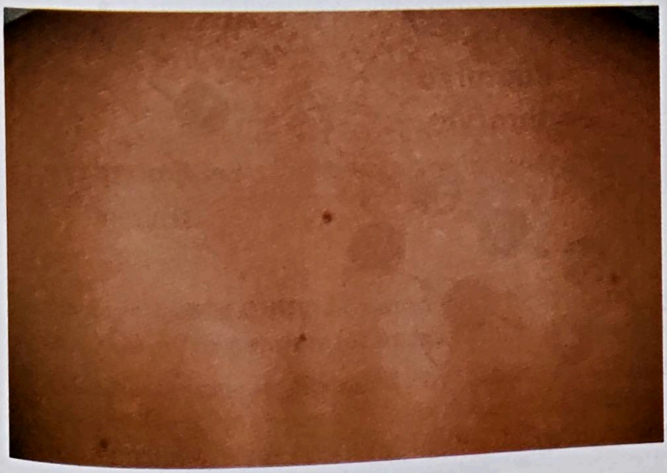


**Figure 52:** Clinical features of rubella

- Initially, the person may have low grade fever, malaise and lymphadenopathy.
- Tender swelling of lymph nodes of suboccipital, postauricular and posterior cervical region.
- The rash **(see Figure 52)** is similar to that of measles but is less extensive and more evanescent; it is often the first sign in children.
- It begins on the face and neck and quickly spreads to the trunk and extremities.
- At onset, a blanching macular erythema may appear, particularly on the face.
- On the 2nd day, the rash often becomes more scarlatiniform (pin point) with a reddish flush.
- Petechiae form on the soft palate (Forschheimer's spots), later coalescing into a red blush. The rash lasts 3 to 5 days.
- Encephalitis may occur in large military outbreaks.
- Diagnosis is usually clinical and serological testing may help.
- Differential diagnosis includes measles, scarlet fever, secondary syphilis, drug rashes, erythema infectiosum, infectious mononucleosis.

## Malaria

**The term 'malaria' is composed of two words –** mal and aria. Mal means bad and Aria means air. This name came into existence because this disease was thought to be caused by foul air in the marshy areas.

It was not until 1880 scientists discovered that malaria was a parasitic disease which is transmitted by female anopheles mosquito.

- The infected mosquito infects the host with one cell parasite called plasmodium.
- This disease is characterised by an intermittent and remittent fever caused by protozoan parasite that invades red blood cells.
- This is transmitted by the bite of infected female anopheles mosquito.
- This is seen in throughout the tropics and subtropics at altitudes below 1500 metres.
- Travellers are susceptible for malaria.
- Species of plasmodium responsible for malarial infection:
  - Plasmodium vivax
  - Plasmodium malariae
  - Plasmodium ovale
  - Plasmodium falciparum

## Distinctive features of individual subtypes of malarial parasites:

| Species | Ring form | Tropozoite | Schizont | Gametocyte | Changes in RBCS |
|---|---|---|---|---|---|
| P. vivax | Single, occupies 1/3rd of RBC; one chromatin | Irregular in form & size (amoeboid) with vacuole | Larger than RBC; 14-24 merozoites | Round or oval; fills RBC | Enlarged, pale, Schuffner's dots (coarse & pink) |
| P. malariae | Single, small; one chromatin dot | Band shaped | Smaller than RBC; 5-10 merozoites arranged as a rosette | Similar to those of P.vivax but smaller | Not enlarged; fine pink granules (Zieman's dots) |
| P. falciparum | More than one ring in a RBC; attached to edges of RBC (eccole or appliquiform) more than one chromatin dot | Not seen in peripheral blood | Not seen in peripheral blood (schizogony occurs in capillaries of internal organs); schizonts with 16-24 merozoites | Cresents (banana shaped) | Normal size; bluish Maurer's dots |
| P. ovale | Like P. malariae but without distinct bands | | Smaller than RBC; round or oval; 8-9 merozoites | Oval, size of RBC and small | Enlarged, oval; Schuffer's dots |

## Life cycle of malarial parasite

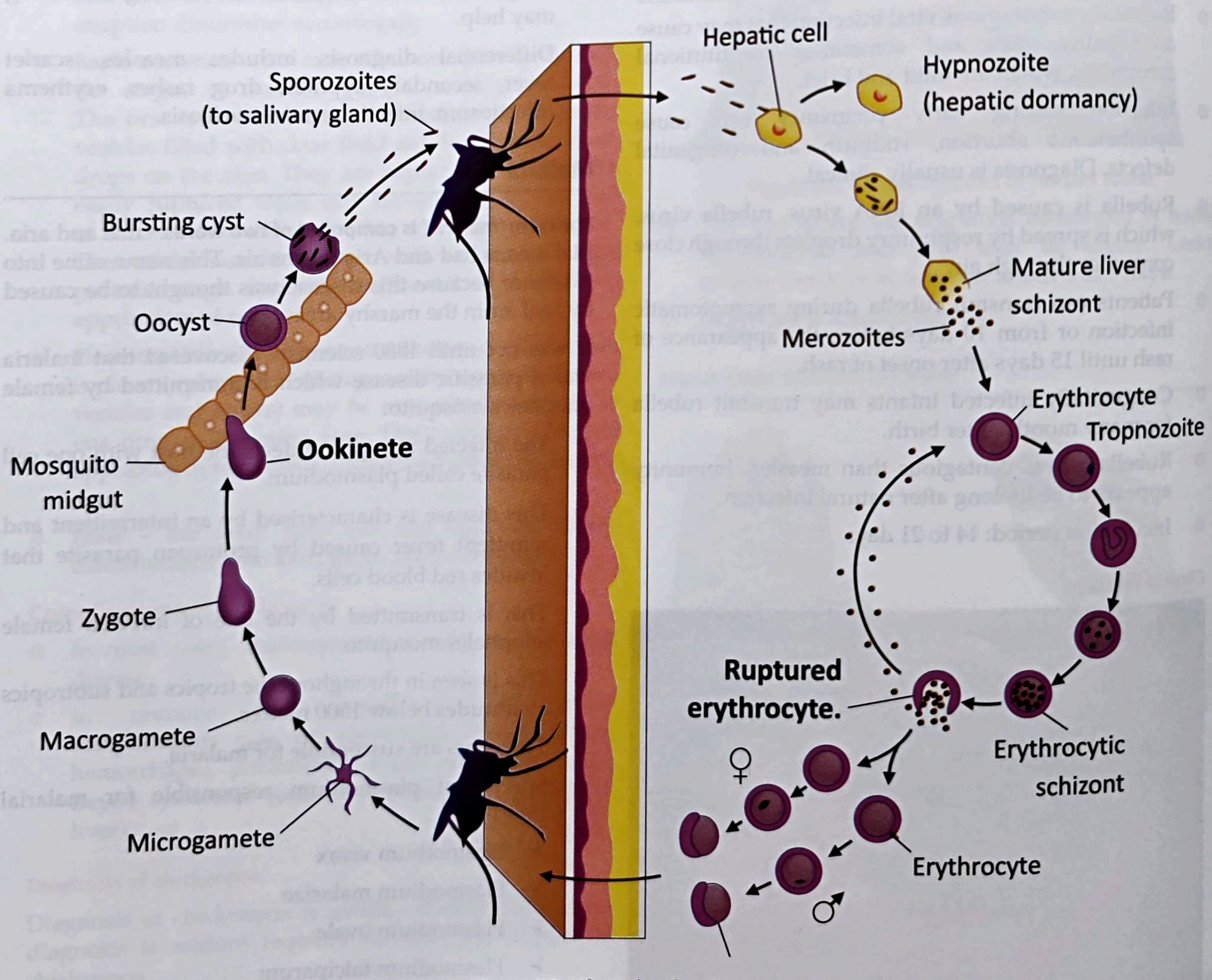
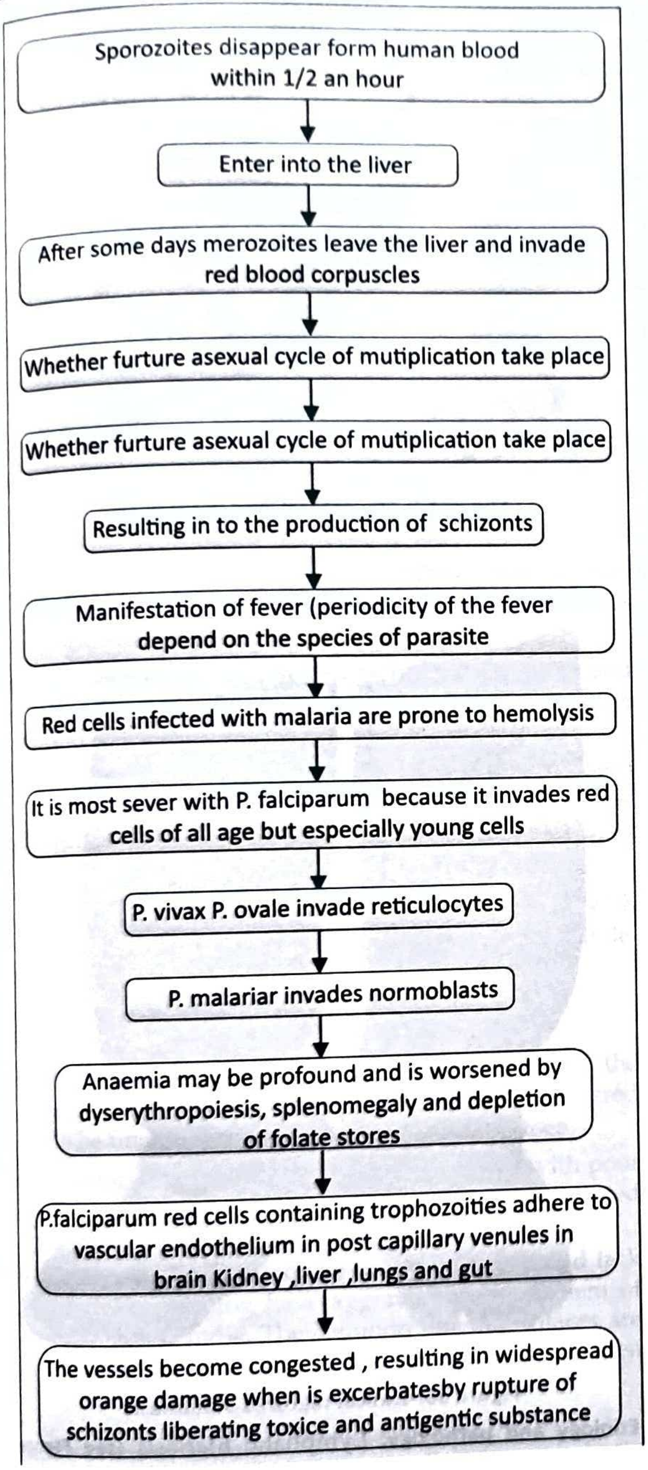

Hepatic cell
Hypnozoite
(hepatic dormancy)
Sporozoites
(to salivary gland)
Bursting cyst
Oocyst
Mature liver
schizont
Merozoites
Erythrocyte
Tropnozoite
Mosquito
midgut
Ookinete
Zygote
Ruptured
erythrocyte.
Macrogamete
Erythrocytic
schizont
♀
Microgamete
Erythrocyte
♂

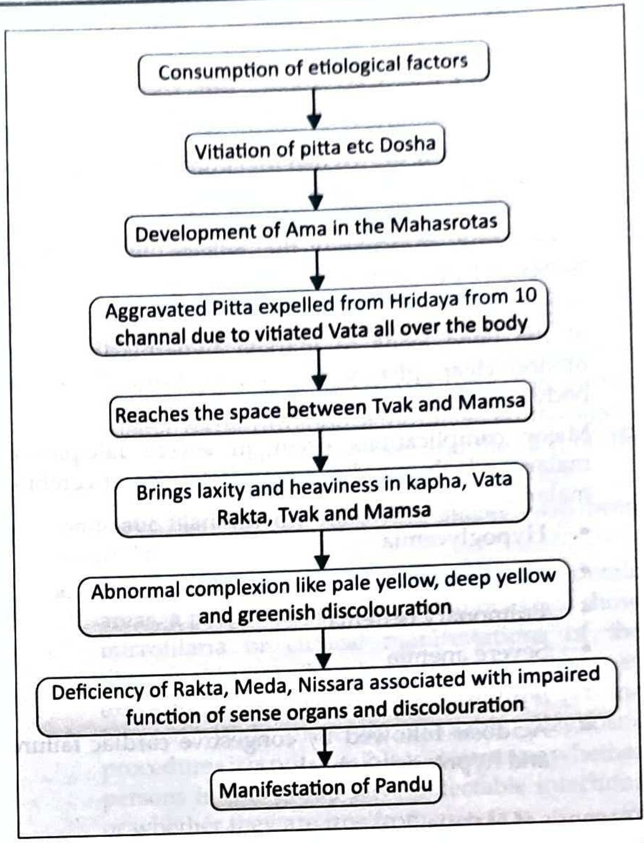
**Figure 53:** Life cycle of malaria


Sporozoites disappear form human blood within 1/2 an hour
Enter into the liver
After some days merozoites leave the liver and invade red blood corpuscles
Whether furture asexual cycle of mutiplication take place
Whether furture asexual cycle of mutiplication take place
Resulting in to the production of schizonts
Manifestation of fever (periodicity of the fever depend on the species of parasite
Red cells infected with malaria are prone to hemolysis
It is most sever with P. falciparum because it invades red cells of all age but especially young cells
P. vivax P. ovale invade reticulocytes
P. malariar invades normoblasts
Anaemia may be profound and is worsened by dyserythropoiesis, splenomegaly and depletion of folate stores
P.falciparum red cells containing trophozoities adhere to vascular endothelium in post capillary venules in brain Kidney ,liver ,lungs and gut
The vessels become congested , resulting in widespread orange damage when is excerbatesby rupture of schizonts liberating toxice and antigentic substance

## Pathology of Malaria

**Morphologic features:** Parasitisation and destruction of erythrocytes are responsible for major pathologic changes.

- Malarial pigment liberated by destroyed RBCs accumulated in phagocytic cells of the reticulo endothelial system resulting in the enlargement of spleen & liver (hepatosplenomegaly).


Consumption of etiological factors
Vitiation of pitta etc Dosha
Development of Ama in the Mahasrotas
Aggravated Pitta expelled from Hridaya from 10 channal due to vitiated Vata all over the body
Reaches the space between Tvak and Mamsa
Brings laxity and heaviness in kapha, Vata Rakta, Tvak and Mamsa
Abnormal complexion like pale yellow, deep yellow and greenish discolouration
Deficiency of Rakta, Meda, Nissara associated with impaired function of sense organs and discolouration
Manifestation of Pandu

- In falciparum malaria, there is massive absorption of haemoglobin by the renal tubules producing black water fever.
- At autopsy, cerebral malaria is characterised by congestion and petechiae on the white matter.
- Parasitized erythrocytes in falciparum malaria are sticky and get attached to endothelial cells resulting in obstruction of capillaries of deep organs such as of the brain leading to hypoxia and death.
- **Initial symptoms:**
  - Fever
  - Headache
  - Chills
  - Sweats
  - Vomiting
- **Causes of malaria:**
  - By an infected mosquito
  - Blood transfusion
  - During pregnancy

## Clinical features of Malaria

- **Cold stage –** Characterised by rigor and headache. The patient feels cold and shivers even though the temperature is raising.

- **Fever stage** – the temperature raises to the maximum. The parasites destroy large number of RBCs and thus leading to haemolytic anemia with fever, headache, joint pain, vomiting and diarrhoea.
- A characteristic brown malarial pigment, a derivative of haemoglobin is identical to hematin is released from the ruptured RBCs along with the merozoites, discovering principally the spleen, liver, lymph nodes, bone marrow.
- Activation of the phagocytic defence mechanisms of the bone leads to marked hyperplasia of the mononuclear phagocytic system throughout the body reflected in splenomegaly.
- Major complications occur in severe falciparum malaria which may have manifestations of cerebral malaria.
    - Hypoglycemia
    - Hemoglobinuria
    - Pulmonary oedema
    - Severe anemia
    - Jaundice
    - Acidosis followed by congestive cardiac failure and hypotensive shock

### Diagnosis of Malaria

The diagnosis of malaria is made by demonstration of malarial parasite in thin or thick blood films or sometimes in histologic sections.

### Laboratory diagnosis of malaria

- Microscopic examination of stained blood smears
- Antigen capture test
- QBC tube test
- Newer diagnostic tests which include gene amplification by PCR
- Immunological diagnosis

## Filariasis

**Introduction:** Lymphatic filariasis is the infection with any of 3 species of Filarioidea. These species are Wuchereria bancrofti, Brugia malayi and B. timori. Acute symptoms of the infection include fever, lymphadenitis, funiculitis and epididymitis. Chronic symptoms include abscesses, hyperkeratosis, polyarthritis, hydrocele, lymphedema and elephantiasis **(see Figure 54)**.

Tropical pulmonary eosinophilia with bronchospasm, fever and pulmonary infiltrates is another manifestation of infection. Diagnosis is by detection of microfilariae in the blood, ultrasound visualisation of adult worms or serologic testing.

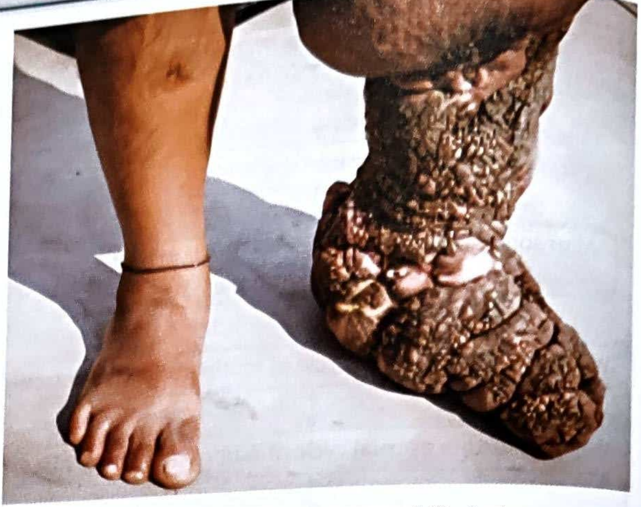


**Figure 54: Clinical features of filariasis**

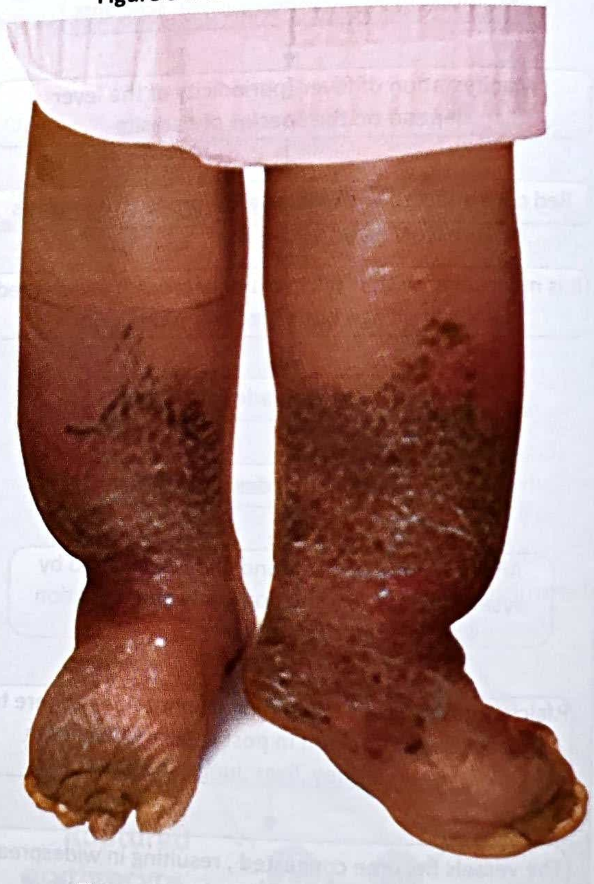


**Figure 55: Clinical features of filariasis**

**Etiology and pathology:** Lymphatic filariasis **(see Figure 55)** is caused by 3 species – Wuchereria bancrofti, Brugia malayi and B. timori. Transmission of the microorganisms is by mosquitoes. Infected larvae from the mosquito migrate to the lymphatics, where they develop into adult worms within 6 to 12 months.

### Agent factors

- The microfilaria of Wuchareria bancrofti, Brugia malayi occurring in India display a nocturnal periodicity i.e. they appear in large numbers at night and retreat from the blood during the day. This is a biological adaptation to the nocturnal biting habits of mosquitoes. The maximum density of microfilaria in blood is reported between 10 pm to 2 am.

- Man is the definite host and mosquito is the intermediate host. The adult worms are usually found in the lymphatic system of the man. The male worms are 40 mm long and female worms are 50 to 100 mm long. The female worms give birth to 50,000 microfilaria a day which find their way into blood circulation via lymphatics. The life span of microfilaria is not known. The adult worms may survive for 15 years or more.

## Host factors

- Man is considered as natural host. All ages are susceptible to infection. In endemic areas, filarial infection has been found even in infants aged less than 6 months.
- Infection rates raise with age upto 20-30 years and then level off. The infection rates decline in middle and old age.
- In endemic areas, the disease is more commonly seen in males.
- The man may get immunity only after many years of exposure.
- Lymphatic filariasis is often associated with urbanisation, industrialisation, migration of people, illiteracy, poverty and poor sanitation.

## Environmental factors

- **Climate:** climate is a very important factor in the spreading of infection. The rainy season is considered to be time of season of breeding of mosquitoes.
- **Drainage:** lymphatic filariasis is associated with poor drainage. The vectors breed profusely in polluted water.
- **Town planning:** Inadequate sewage disposal and lack of town planning have aggravated the problem of filariasis in India. The common breeding places are soakage pits, ill-maintained drains, septic tanks, open ditches, burrow pits etc.

## Mode of transmission

Filariasis is transmitted by the bite of infected vector mosquitoes. The parasite is deposited near the site of puncture. It passes through the puncture skin or may penetrate the skin on its own and finally reach the lymphatic system.

The incubation period is the time period of the entry of the microorganism into the body and time of manifestation of the clinical features. In filariasis, the incubation period is most commonly between 8 to 16 months.

## Symptoms and signs

Depend upon the time of entry of the causative organism into the body and the response of the body to the microorganism and duration of the entry of the microorganism into the body. The clinical manifestations can be divided into two distinct clinical types. Lymphatic filariasis caused by the parasite in the lymphatic system and occult filariasis caused by an immune hyperresponsiveness of the human host for e.g. tropical pulmonary eosinophilia. As the microorganism resides in the lymphatics, the person will suffer from non pitting type of oedema. As the duration of the illness is prolonged, the skin becomes thicker and thicker and the skin of the patient becomes like that of the skin of the elephant.

1. **Lymphatic filariasis:** the following stages have been described.
    a. **Asymptomatic amicrofilaraemia:** In all endemic areas, a proportion of population does not show microfilaria or clinical manifestations of the disease although they have the same degree of exposure to infective larvae as those who become infected. With presently available diagnostic procedures it is not possible to determine whether persons in this group have detectable infections or whether they are free from infection.

    b. **Asymptomatic microfilaraemia:** A considerable proportion of people are asymptomatic, although their blood is positive for microfilaria. They may remain without any symptoms for source of infection in the community. These carriers are usually detected by night blood examination.

    c. **Stage of acute manifestation:** In the first months and years there are recurrent episodes of acute inflammation in lymph glands and vessels. The clinical manifestations comprise filarial fever, lymphangitis, lymphadenitis, lymphoedema of the various parts of the body and epididymoorchitis in the male.

    d. **Stage of chronic obstructive lesions:** The chronic stage usually develops 10-15 years from the onset of the first acute attack. This phase is due to fibrosis and obstruction of lymphatic vessels causing permanent structural changes.

In chronic Bancroftian filariasis, the main clinical features are hydrocele, elephantiasis and chyluria. Elephantiasis may affect the legs, scrotum, arms, penis, vulva and breasts usually in the order of decreasing frequency.

The Brugian filariasis is generally similar to Bancroftian filariasis, but strangely the genitalia are rarely involved.

2. **Occult filariasis:** The term occult or cryptic filariasis refers to filarial infections in which the classical clinical manifestations are not present and microfilaria are not found in the blood. Occult filariasis is believed

to result from a hypersensitivity reaction to filarial antigens derived from microfilaria. The best example is tropical pulmonary eosinophilia.

- **Tropical pulmonary eosinophilia** – is an uncommon manifestation with recurrent bronchospasm, transitory lung infiltrates, low grade fever and marked eosinophilia. This is mostly due to hypersensitivity reaction to microfilariae.

**Complications:** Chronicity of the pathological process causes enormous thickening and induration of the skin of the legs and scrotum resembling the hide of the elephant and hence the name elephantiasis. Chylous ascites, chyluria **(see Figure 56)** and chylothorax may occur due to the rupture of lymphatics of the abdomen and thorax.

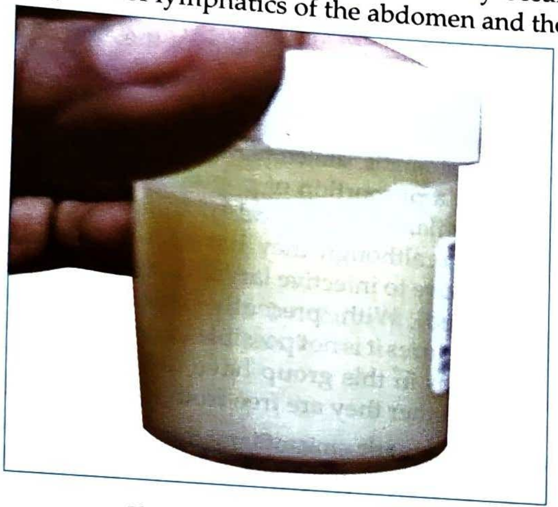


**Figure 56:** Image of chyluria

## Diagnosis

Diagnosis of filariasis is by microscopic examination of blood samples. While doing the peripheral smear examination, detection of microfilariae will confirm the diagnosis of filariasis.

## Flu

This is also being termed as influenza. This is a viral, respiratory infection causing fever, running nose, cough, headache and malaise.

Mortality is possible during seasonal epidemics, particularly in high risk patients (who are hospitalised, at the extremes of age, have cardiopulmonary insufficiency or in late pregnancy); during pandemics, even healthy, young patients may die. Diagnosis is usually clinical and depends on local epidemiological patterns.

- This is caused by influenza virus. These are classified as types A, B or C by their nucleoproteins and matrix proteins.

**Incubation period:** ranges from 1 to 4 days with an average of about 48 hours.

- In mild cases, many symptoms are like common cold (sore throat, rhinorrhoea); mild conjunctivitis may occur.
- Typical influenza in adults is characterised by sudden onset of chills, fever, prostration, cough and generalised aches and pains (especially in the back and legs). Headache is prominent, often with photophobia and retrobulbar aching.
- Respiratory symptoms may be mild at first, with scratchy throat, substernal burning, nonproductive cough, sometimes running nose. Later lower respiratory tract symptoms become prominent.
- After 2 to 3 days, the symptoms rapidly subside, although fever may persist for upto 5 days. Cough, weakness, sweating, fatigue may persist for several days or occasionally for weeks.
- Complications may appear such as pneumonia which is characterised by worsening cough, blood mixed sputum, dyspnoea, crepitations. Secondary bacterial pneumonia is suggested by persistence or recurrence of fever and cough after primary illness appears to be resolving. Encephalitis, myocarditis and myoglobinuria, sometimes with renal failure develop infrequently after influenza A or B infection.
- Diagnosis is by clinical evaluation and sometimes rapid diagnostic testing, pulse oximetry and chest x ray.

## Dengue

The word dengue is derived from African word 'denga' meaning fever with haemorrhages. Dengue is mosquito borne disease caused by flavivirus. Dengue fever is usually results in abrupt onset of high fever, headache, myalgia, arthralgia and lymphadenopathy followed by a rash that appears with a 2nd temperature rise after afebrile period. Respiratory symptoms such cough, sore throat and rhinorrhoea can occur.

Dengue can also cause fatal hemorrhagic fever with bleeding tendency and shock. Dengue virus infects blood monocytes, lymphocytes, endothelial cells. This initiates complement activation and consumptive coagulopathy including thrombocytopenia. The entire process takes place rapidly and may evolve over a period of few hours. If the patient is treated appropriately at this stage, there is rapid and dramatic recovery. But, in untreated cases, dengue shock syndrome develops and death occurs.

## Epidemiology

The disease spread by the bite of Aedes aegypti mosquitoes. The virus circulates in the blood of the infected humans for 2 to 7 days.

**Incubation period:** 3 to 15 days.

### Clinical features

- Fever, chills, headache, retro-orbital pain with eye movement, lumbar backache and severe prostration begins abruptly.

- Extreme aching in the legs and joints occurs during the first hours accounting for the traditional name of break bone fever. The temperature raises rapidly upto 40⁰C with a relative bradycardia.
- Fever and other symptoms may persist 48 to 96 hours, followed by rapid defervescence with profuse sweating. Patients then feel well for about 24 hours after which fever may occur again (saddle back pattern), typically with a lower peak temperature than the first. Simultaneously, a blanching maculopapular rash spreads from the trunk to the extremities and face.

### Diagnosis

- Evaluation should rule out alternative diagnoses, malaria and leptospirosis in particular.
- Is based on serologic testing and PCR

## Dengue Hemorrhagic Fever

Dengue hemorrhagic fever is a variant presentation that occurs primarily in children < 10 years living in areas where dengue is endemic.

### Clinical features

In adults, dengue hemorrhagic fever with abrupt fever and headache, and is initially indistinguishable from classic dengue. Shock and increasing illness may develop rapidly 2 to 6 days after onset. Bleeding tendencies occur usually as purpura, petechiae or ecchymoses at injections sites; sometimes as hematemesis, malena or epistaxis and in some individuals, there will be subarachnoid hemorrhage. Hepatomegaly as well as bronchopneumonia with or without bilateral pleural effusions are common.

Diagnosis is clinical and laboratory criteria. CBC, coagulation tests, urinalysis, liver function tests, dengue serological tests are done to confirm the diagnosis and predict prognosis of the disease.

## Leptospirosis

Leptospirosis is an infection caused by one of the several pathogenic serotypes of leptospira. Symptoms are biphasic. Both phases involve acute febrile episodes; the 2nd phase sometimes include haptic, renal and meningeal involvement. Diagnosis is done by darkfield microscopy, culture and serologic testing.

This is a zoonosis occurring in many domestic and wild animals, may cause iapparent illness or serious, even fatal disease.

Human infections are acquired by direct contact with infected urine or tissue or indirectly by contact with contaminated water or soil. Abraded skin and exposed mucous membranes (conjunctival, nasal, oral) are usual entry portals. Dogs and rats are common probable sources of leptospirosis.

**Incubation period:** 2 to 20 days (usually 7 to 13 days)

### Clinical features

- The disease is biphasic.
- The septicemic phase starts abruptly, with headache, severe muscular aches, chills, fever, cough, chest pain and in some cases, haemoptysis. Conjunctival suffusion usually appears on the 3rd or 4th day. Splenomegaly and hepatomegaly are uncommon. This phase lasts 4 to 9 days with intermittent nature of occurrence of fever.
- Immune phase occurs between 6th and 12th day of the illness, correlating with appearance of antibodies in serum. Fever and earlier symptoms recur, and meningitis may develop.
- Weil's syndrome (icteric leptospirosis) is a severe form with jaundice and usually azotemia, anaemia, diminished consciousness and continued fever. Haemorrhagic manifestations which are due to capillary injury and include epistaxis, petechiae, purpura and ecchymoses may be developed. Thrombocytopenia may occur. Signs of hepatocellular and renal dysfunction appear from 3rd to 6th day. When leptospirosis appears with jaundice, mortality rate is 5 to 10%, otherwise, mortality is nil in leptospirosis without jaundice.
- **Diagnosis:** blood cultures and serologic testing

## Chikun Gunya

Chikungunya is a acute febrile illness followed by more chronic polyarthritis. It is transmitted by Aedes mosquito and is common in Africa, Asia, Southeast Asia and limited parts of Europe. Prevention involves avoiding the bite of mosquito.

## Aetiology

- It is an alpha virus that causes fever, rashes and arthropathy.
- It is found principally in Africa and Asia including India.
- Human and non-human primates are the main reservoirs and the vector for the transmission of the infection is Aedes aegypti mosquito.
- Cases occur in epidemics on a background of sporadic cases.

**Incubation period :** The incubation period of the disease is 2 – 12 days.

### Clinical features

- A period of fever may be followed by an afebrile phase and then recrudescence of fever.

- Children may develop maculo-papular rashes.
- Adults are susceptible to arthritis, which causes early morning pain and swelling of the joints and most often observed in small joints.
- Arthritis can persist for months and may become chronic in HLA-B27 positive individuals.
- Related alpha virus causing similar syndromes include Sindbis virus (Scandinavia and Africa), O'nyong-nyong virus (Central Africa), Ross River virus (Australia) and Mayaro virus (Carribian and South America).
- After its mysterious emergence, the virus virtually disappeared, leaving only occasional evidence of its persistence in Kenya until a transient resurgence of epidemic activity in 1997.

### Diagnosis

- It is done by serology but cross reactivity between alpha viruses occurs.
- The rash is most intense on the trunk and limbs and may desquamate.
- Petechiae are occasionally seen, and epistaxis is not uncommon, but this virus is not a regular cause of the HF syndrome, even in children.
- Full blood count: A few patients may develop leukopenia and mildly decreased platelet counts
- LFT: elevated levels of aspartate aminotransferase (AST) have been described.
- CRP (C Reactive Protein): Elevated levels of CRP is seen.

## TYPHOID

Typhoid fever is a systemic disease caused by Salmonella typhi. Symptoms are high fever, prostration, abdominal pain and a rose coloured rash. Diagnosis is clinical and confirmed by culture.

### Epidemiology

- Typhoid bacilli are shed in in stool or urine of people with active disease. Inadequate hygiene after defecation may spread S. typhi to community food or water supplies. Bacilli will be transmitted more frequently by water than food.
- Flies may spread the organisms from feces to food.
- Occasional transmission by direct contact (feco-oral route) may occur in children during play and in adults during sexual practices.
- The organism enters the body via gastro intestinal tract and gains access to blood stream via the lymphatic channels. Intestinal ulceration, hemorrhage and perforation may occur in severe cases.

**Incubation period:** 8 – 14 days. The incubation period is inversely related to the number of orgaanisms ingested.

### Pathology

### Clinical features

- Onset is usually gradual, with fever, headache, arthralgia, pharyngitis, constipation, anorexia, abdominal pain and tenderness are observed. Less common symptoms include dysuria, non productive cough and epistaxis.

Image of pathology of typhoid fever:

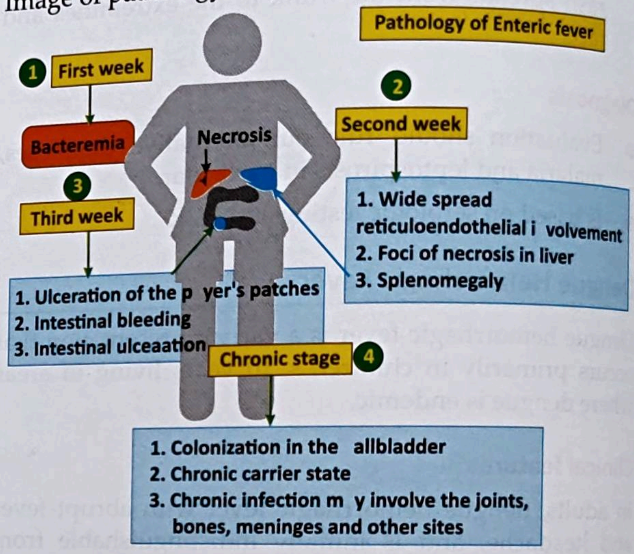

Pathology of Enteric fever
1 First week
Bacteremia
Necrosis
2 Second week
1. Wide spread reticuloendothelial i volvement
2. Foci of necrosis in liver
3. Splenomegaly
3 Third week
1. Ulceration of the p yer's patches
2. Intestinal bleeding
3. Intestinal ulceaation
Chronic stage 4
1. Colonization in the allbladder
2. Chronic carrier state
3. Chronic infection m y involve the joints, bones, meninges and other sites

**Figure 57:** Algorhythm of enteric fever

- Without treatment, the temperature raises in steps over 2 to 3 days, remains elevated for another 10 – 14 days. This will reduce gradually at the end of 3rd week and reaches normal levels during 4th week.
- Prolonged fever is often associated with relative bradycardia and prostration.
- In 10% of the patients, discrete pink, blanching lesions (rose spots) appear in crops on the chest and abdomen during 2nd week and resolve in 2 to 5 days.
- Splenomegaly, leukopenia, anemia, liver function dysfunction, proteinuria, acute cholecystitis may occur.
- An acute abdomen and leukocytosis in the 3rd week of presentation, may suggest intestinal perforation.
- Pneumonia may develop during 2nd or 3rd week and may be due to secondary pneumococcal infection.

### Diagnosis

- Widal test
- Cultures of blood, stool and urine should be obtained. Blood cultures are usually positive during first 2 weeks of illness, but stool cultures are positive

during 3rd to 5th week. If these cultures are negative and typhoid fever is strongly suspected, culture from a bone marrow biopsy specimen may reveal the organism.

### Prognosis

- Without antibiotics, the mortality rate is about 12%, with prompt therapy, the mortality rate is 1%. Most deaths occur in malnourished people, infants and elderly.
- Stupor, coma or shock reflects severity of the disease and poor prognosis of the disease in the affected individuals.

## Other Regional Disorders With Fever

Man is surrounded by millions of microorganisms. Some of the microbes are harmless and some are producing more harm to the body. These microorganisms will enter to the body by various routes i.e. mouth, ears, nose, eyes, urethra, anus, vagina, breasts. These microbes may also enter to the body through cuts or injuries occurring to the skin and mucous membranes. When these organisms come in contact with body defence systems, then due to the antigen antibody reaction, the person is likely going to have fever sooner or later depending upon the human response to these organisms.

### Four levels of defense will come into play.

1. Tissue macrophages: within minutes after the entry of the microorganism, inflammation begins, the macrophages already present in the tissues, whether histiocytes in the subcutaneous tissues, alveolar macrophages in the lungs, microglia in the brain or others, immediately begin their phagocytic actions. This comes into action within one hour or so.
2. Neutrophil invasion of the inflamed area is a second line of defense. Within the first hour or so after inflammation, large numbers of neutrophils begin to invade the inflamed area from the blood. This is caused by products from the inflamed tissues that initiate margination (neutrophils to stick to inner surface of capillary endothelium); diapedesis (passage of neutrophils from the capillaries to the tissue of damage); chemotaxis (inflammatory products leading to the movement of neutrophils towards the interstitial spaces). This will lead to neutrophilia (4 to 5 fold increase of number of neutrophils in the body).
3. Second macrophage defense is the third line of defense. Along with the invasion of neutrophils, monocytes from the blood enter the inflamed tissue and enlarge to become macrophages. However, the number of monocytes in the circulating blood is low, also the storage pool of monocytes in the bone marrow is much less than that of neutrophils. Therefore the buildup of macrophages in the inflamed tissue area is much slower than that of neutrophils, requiring several days to become effective. Furthermore, even after invading the inflamed tissue, monocytes are still immature cells, requiring 8 hours or more to swell to much larger sizes and develop tremendous quantities of lysosomes; only then do they acquire the full capacity of tissue macrophages for phagocytosis. After several days to several weeks, the macrophages finally come to dominate the phagocytic cells of inflamed area because of increased bone marrow production of new monocytes.
4. Increased production of granulocytes and monocytes by the bone marrow is the 4th line of defense: This occurs from the stimulation of granulocytic and monocytic progenitor cells of the bone marrow. However, it takes 3 to 4 days before newly formed granulocytes and monocytes to reach the stage of leaving the bone marrow. If the stimulus from the inflamed tissue continues, the bone marrow can continue to produce these cells in tremendous quantities for months and even years, sometimes at a rate 20 to 50 times normal.

### Key summary of the chapter

- Any of the metabolic activity happening inside the body will lead to the generation of heat. If metabolic activity increases, this will lead to the increased generation of heat. The person may present with occurrence of fever when there is increased heat production inside the cells or reduced heat loss from the body or both mechanisms occur in an individual.
- Temperature of the body is recorded by clinical thermometer. Nowadays, digital thermometers are used. The thermometer should be kept in oral cavity or axillary region or groin or rectal region. This should be kept in situ for a period of 2 to 3 minutes. To identify the type of fever, one should record the temperature for every 4 to 6 hours.
- Stages of fever: 4 stages are being identified: stage of prodromal stage, stage of onet, stage of full development and stage of decline.
- Depending upon the nature of pathological events taking place in the body, the person may have presenting complaints along with fever, chills or rigor. For example, if the person is having urinary infection, the person may have burning micturition along with fever.
- Inflammation, infection, collection of pus, collagen diseases, allergic diseases, drugs, heat stroke are the probable clinically identifiable causes of fever occurrence.

### Self-Assessment: Questions for Reviews

**Short essays**

- What are the clinical causes of fever occurrence?
- Define fever and explain the stages of fever.
- Describe measles
- Describe chickenpox
- Explain dengue fever
- Explain filariasis
- Describe typhoid
- Describe chickungunya
- Explain leptospirosis
- Explain flu

### MCQs

**1. What is the amount of time required for the clinical thermometer should be kept to record the body temperature?**

a. 5 to 6 minutes;
b. 1 to 5 minutes;
c. 2 to 3 minutes;
d. 4 to 5 minutes

*Answer*: (c)

**2. Which of the following regions of the body where clinical thermometer should not be kept?**

a. Oral cavity;
b. Axillary region;
c. Rectum;
d. Palms

*Answer*: (d)

**3. What is the recording of temperature in Fahrenheit scale when the person is having 37° C on clinical thermometer recording?**

a. 95° F; b. 98.6° F;
c. 101° F; d. 91° F

*Answer*: (b)

**4. What is the formula used for the calculation of temperature to covert from Fahrenheit to Celsius scale?**

a. 9/5× (F-32); b. 5/9×(F-32);
c. 9/5 ×(F+32); d. 5/9×(F+32)

*Answer*: (b)

**5. Quotidian fever is a type of**

a. Continuous fever;
b. Remittent fever;
c. Intermittent fever;
d. Irregular fever

*Answer*: (c)

**6. The term quartan fever is used in an individual who is having intermittent fever occurs every**

a. 6th day; b. Alternate day;
c. 4th day; d. Day

*Answer*: (c)

**7. When a clinician makes the diagnosis of PUO (pyrexia of unknown origin) with unidentifiable cause, the duration of presence of fever will be for**

a. 7 days; b. 10 days; .
c 14 days; d. 21 days

*Answer*: (d)

**8. Which of the following is an example for lysis type of subsidence of fever as per western literatures?**

a. Pneumonia;
b. Tuberculosis;
c. Typhoid;
d. Perforation of gastric ulcer

*Answer*: (c)

**9. Which of the following does not indicate inflammatory events of the body?**

a. Leucocytosis;
b. Leucocytopenia;
c. Anemia;
d. Polycythemia

*Answer*: (a)

**10. In which part of the oral cavity, clinical thermometer should be kept for recording the temperature of the body?**

a. Dorsal surface of the tongue;
b. Ventral surface of the tongue;
c. In between third molar and oral mucosa;
d. In between incisors and oral mucosa

*Answer*: (b)

**11. Which of the following is not a viral disease?**

a. Rubella; b. Measles;
c. Chikun gunya; d. Typhoid

*Answer*: (d)

**12. Which of the following is a viral disease?**

a. Malaria; b. Typhoid;
c. Filariasis; d. Chickenpox

*Answer*: (d)

**13. Cerebral malaria is caused by**

a. P. vivax; b. P. falciparum;
c. P. ovale; d. P. malariae

*Answer*: (b)

**14. Skin eruptions observed in skin in dermatomal presentation and seen in unilateral presentation is seen in**

a. Chickenpox;
b. Hand foot mouth disease;
c. Herpes zoster;
d. Filariasis

*Answer*: (c)

**15. Non pitting type of oedema is seen in which of the following disease condition?**

a. Chickenpox; b. Filariasis;
c. Herpes zoster; d. Typhoid

*Answer*: (b)

**16. Filariasis is not caused by**

a. Wuchereria bancrofti;
b. Brugia malayi;
c. B. timori;
d. Vibrio cholerae

*Answer*: (d)

**17. Oedema observed in the patient of filariasis is**

a. Pitting type of oedema;
b. Non pitting type of oedema;
c. Both a and b;
d. Oedema is not observed

*Answer*: (b)

**18. Fever observed in the patient of filariasis is in**

a. Day time;
b. Night time;
c. Both a or b;
d. Both a and b

*Answer*: (b)

**19. The vector responsible for the transmission of filariasis is**

a. Female anopheles mosquito;
b. Culex mosquito;
c. Aedis agypti mosquito;
d. Common fly

*Answer*: (b)

**20. Which of the following is helpful in detection of filariasis?**

a. Blood evaluation;
b. Urine evaluation;
c. Sputum evaluation;
d. Semen evaluation

*Answer*: (a)

**21. Typhoid fever is ................infection.**

a. Bacterial;
b. Viral;
c. Fungal;
d. Protozoan

*Answer*: (a)

**22. Incubation period of typhoid fever is**

a. 1 to 2 days;
b. 2 to 7 days;
c. 15 to 20 days;
d. 8 to 14 days

*Answer*: (d)

**23. Step ladder pattern of fever manifestation is seen in**

a. Pneumonia;
b. Typhoid;
c. Malaria;
d. Tuberculosis

*Answer*: (b)

**24. Salmonella typhi is responsible for the manifestation of**

a. Pneumonia;
b. Malaria;
c. Typhoid;
d. Tuberculosis

*Answer*: (c)

**25. Widal test is confirmatory for the diagnosis of**

a. Pneumonia;
b. Malaria;
c. Typhoid;
d. Tuberculosis

*Answer*: (c)

**26. The available species of plasmodium responsible for malaria manifestation are**

a. 2; b. 3;
c. 4; d. 6

*Answer*: (c)

**27. Cerebral malaria is caused by**

a. Plasmodium vivax;
b. Plasmodium malariae;
c. Plasmodium ovale;
d. Plasmodium falciparum

*Answer*: (d)

**28. The type of jaundice seen in the patients of malaria is**

a. Prehepatic jaundice;
b. Hepatic jaundice;
c. Posthepatic jaundice;
d. All of the above; e. Any of the above

*Answer*: (a)

**29. Malaria is transmitted by vector**

a. Female anopheles mosquito;
b. Female culex mosquito;
c. Aedes agypti;
d. Common fly

*Answer*: (a)

**30. The nature of fever observed in malaria is/are**

a. Tertian;
b. Quartan;
c. Continuous;
d. Any of the above

*Answer*: (d)

### Chapter resources

- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.tradeindia.com
- www.shop.gabsystem.com
- www.toppr.com
- www.aafg.org for Koplik spots
- www.healthjade.com for rashes of measles
- www.wikipedia.org for chickenpox
- www.dermskinhealth.com for herpes zoster
- www.drugs.com for hands feet mouth disease
- www.nhs.uk for rashes of rubella
- www.malariasite.com
- www.homeoenergy.com for filariasis
- https://images.medindia.net/amp-images/patientinfo/filariasis.jpg
- www.healthjade.com for filariasis

***

CHAPTER

20

# Pandu

## Learning Objectives

- To learn the concept of Pandu
- To understand the Nidana Panchaka of Pandu mentioned in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To learn the Pratyatma Lakshana (cardinal feature) of Pandu
- To know about the Purvarupa of Pandu with current understanding
- To know about the Upadrava of Pandu with current understanding
- To understand the Sadhyasadhyata of Pandu with current understanding
- To know about the 5 types of Pandu
- To know the concept of Dosha dominant Pandu

## Introduction

**पाण्डुना वक्ष्यमाणहरितादिवर्णेभ्यः प्रधानेन वर्णेनोपलक्षितो रोगः पाण्डुरोगः।**
**उत्तं हि सुश्रुते 'सर्वेषु चैतेषु हि पाण्डुभावो यतोऽधिकोऽतः खलु पाण्डुरोगः '( सु. उ. अ. 44 ) इति।** Chakra, Ca.Ci. – 16/1-2

The disease *Pandu* is considered to be related to discolouration of the body. The discolouration of the body may range from yellowish white discolouration to greenish discolouration of the body. *Ayurveda* literatures say the discolouration of the skin resembles colour of *Ketaki Dhuli* **(see Figure 58)** (particles of *Ketaki*) which is yellowish white discolouration. As per *Ayurveda* understanding, the term *Varna* refers not only discolouration, abnormal texture of the skin should also be considered. This is the disease involving *Rasavaha Srotas* and is a *Pitta* dominant disease with *Sanga* and *Vimargagamana* are the nature of *Srotodushti* happening during the course of the illness.

**Pratyatma Lakshana of Pandu:** The following are considered as *Pratyatma Lakshana* (cardinal features) of the disease *Pandu*.

**सोऽल्परकोऽल्पमेदस्को निःसारः शिथिलेन्द्रियः।**
**वैवर्ण्यं भजते, तस्य हेतुं शृणु सलक्षणम्।।6 ।।** Ca.Ci. – 16/6

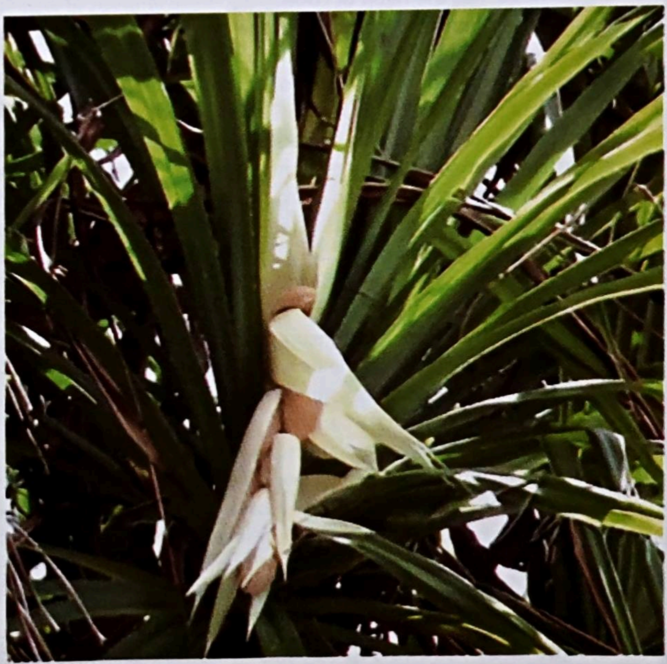


**Figure 58:** Colour of Ketaki Dhuli (yellowish white) of Pandu Roga

- **Alparakta**[1] – less volume of the blood
- **Alpa Medas**[2] – less amount of fat in the body
- **Nissara**[3] – poor nutritional status of the body
- **Shithilendriya**[4] – poor functioning of the *Indriya* either *Jnanendriya* or *Karmendriya*
- **Vaivarnya**[5] – discoluration of the body or abnormal texture of the skin

## Samanya Nidana of Pandu

क्षाराम्ललवणात्युष्णाविरुद्धासात्म्यभोजनात्।
निष्पावमापपिण्याकतिलतैलनिषेवणात्॥7॥
विदग्धेऽन्ने दिवाखनाढ्यायामान्मैथुनात्तथा।
प्रतिकर्मर्तुवैषम्याद्वेगानां च विधारणात्॥8॥
कामचिन्ताभयक्रोधशोकोपहतचेतसः। Ca.Ci. – 16/7-9

व्यवायमम्लं लवणानि मद्यं मृदं दिवास्वप्रमतीव तीक्ष्णम्।
निषेवमाणस्य विदूष्य रक्तं कुर्वन्ति दोपास्त्वचि पाण्डुभावम्॥3॥
Su.Ut. – 44/3

- **Kshara**[6] – excess consumption of alkaline substances
- **Amla**[7] – excess consumption of sour substances
- **Lavana**[8] – excess consumption of salty substances
- **Atyushna**[9] – excess consumption of substances having *Ushna Virya* (hot potency)
- **Viruddha**[10] – excess consumption of *Viruddha* substances
- **Asatmya Bhojana**[11] – excess consumption of unwholesome substances

---

**GK**

[1] This is attributable to the decreased amount of blood in the body either due to the blood loss or due to poor formation of blood cells in aplastic anemia or due to the deficiency of nutrients necessary for RBC formation or due to haemolysis in the body.

[2] As the person is having less amount of blood in the body reaching the every cell of the body, that refers to the mobilisation of fat situated in the different parts of the body, such as buttocks, breasts, abdomen or subcutaneous tissue of the body. Because of fati utilisation, the person will have less amount of stored fat in the body.

[3] This is attributable to the poor absorption of nutrients either deficiency of proteins or deficiency of intrinsic factor or deficiency of RBC forming substances or frequent infection in any part of the body.

[4] This is attributable to poor nutrition because of less volume of blood as there will be shift of the blood circulation from the periphery to the core of the body such as brain and heart. Poor blood supply to the skin or ear or tongue or eyes or nose or Karmendriya such as hands, feet, vocal cord, anus and urethra or vagina leading to poor functioning of these Indriya.

[5] **वर्णभेदेन ग्लानिहर्परीक्ष्यस्नेहा व्याख्याताः॥** Ca.I. – 1/10
This is attributable to abnormal discolouration either cyanosis or pallor or it can be abnormal texture such as dryness or cracks of the skin. Cracks in the skin can occur due to peripheral vaso constriction.

[6] Mucosa of the stomach has three types of cells – mucous cells, peptic or chief cells and oxyntic or parietal cells. Mucous cells are responsible for the production of mucus; peptic cells are producing the pepsinogen and oxyntic cells secrete hydrochloric acid and intrinsic factor. When an individual has the habit of consuming more amount of alkaline substances frequently, that will lead to the neutralisation of hydrochloric acid. This will lead to destruction of the oxyntic cells in due course of time. This will lead to the hampered secretion of intrinsic factor which is an essential factor for the absorption of vitamin B12. Thus, when an individual has the habit of continuous consumption of alkaline substances, he might be the sufferer of pernicious anemia.

[7] The term Amla refers to sour taste. If an individual consumes more amount of Amla substances, that will be responsible for the increased hydrogen ion concentration in the stomach. This may be responsible for the initiation of inflammation of alimentary canal either gastritis or enteritis. The mechanism is responsible for the increased peristaltic movements and the final outcome is diarrhoea. Because of diarrhoea, there will be poor absorption of iron, vitamin B12 etc from small intestine. This will lead to the manifestation of anemia.

[8] The term Lavana refers to salt taste. If an individual consumes more amount of Lavana substances, that will be responsible for the increased sodium ion concentration in the stomach. Normally, 20-30 gms of sodium are secreted in the intestinal secretions each day and 5-8 gms of sodium is consumed by an individual. To prevent the net loss of sodium from faecal matter, intestines will absorb 25 to 35 gms of sodium each day. This amount is equal to 1/7th of all the sodium present in the body.

- Due to the excess salt consumption, the water is getting transported into the alimentary canal via lumen through the process of diffusion. This will lead to the increase of content of alimentary canal.
- When an individual consumes excess salt, the person will consume excess amount of water. This also increase the volume of the content in the alimentary canal.
- Both of the above mechanisms may lead to excess peristaltic movements, thereby the absorption of nutrients such as vitamin B12, folic acid, intrinsic factor which are necessary for formation of blood will hamper.

[9] The term Atyushna refers to the substances having hot potency such as chilli etc. This will lead to the inflammation of alimentary canal leading to the hypermotility and thus leading to the malabsorption syndrome.

[10] When an individual is consuming Viruddha substances in the form of foods and drinks may lead to the affliction of Rakta Dhatu which is liquid in nature, thereby may lead to the affliction of Rasa and Rakta Dhatu because Rasa and Rakta Dhatu are liquid in nature. This may show the affliction of skin disease.
**पाण्ड्यान्ध्यवीसपेदकोदराणां विस्फोटकोन्मादभगन्दराणाम्। मूर्च्छामदाध्मानगलग्रहाणां पाण्डामयस्यामविषस्य चैव॥102॥**
**शोधाम्लपित्तज्वरपीनसानाम्। सन्तानदोषस्य तथैव मृत्यो- विरुद्धमन्त्रं प्रवदन्ति हेतुम्॥103॥**
Pandu is also manifested due to the continuous exposure of the individual to the Viruddha food substances. Ca.Su. – 26/102,103

[11] As per Ayurveda literatures, Asatmya Ahara consumption is considered as Nidana or Anupashaya for any of the disease manifestation, it may even be responsible for the manifestation of Pandu disease.
**विपरीतोऽनुपशयः स सात्म्यमिति स**
A.Hr.NI. – 1/7

- **Nishpava**[12] – consumption of beans
- **Masha**[13] – consumption of black gram items
- **Pinyaka** – consumption of *Pinyaka*
- **Tila Taila**[14] **Nishevana** - consumption of *sesamum* oil prepared substances
- **Vidagdhe Anne Divaspapna, Vyayama and Maithuna**[15] – sleeping during day time, performing exercise, performing sexual activity after consumption of *Vidaha* substances or during the digestion of food
- **Pratikarma Vaishamya**[16] – improper diet and regimen during or after undergoing *Shodhana* line of treatment
- **Rtu Vaishamya** – improper diet and regimen related to a particular season
- **Vega Vidharana**[17] – suppression of natural urges
- **Kama**[18] – when the person is having excessive desire
- **Chinta**[18] – when the person is having excess mental stress
- **Bhaya**[18] – when the person is having excess fear
- **Krodha**[18] – when the person is having excess anger
- **Shoka**[18] – when the person is having excess grief
- **Vyavaya**[18] – performing excess sexual activity
- **Madya**[19] – excess consumption of intoxicating substances
- **Mrid**[20] – excess consumption of mud

## Samprapti of Pandu

दोषाः पित्तप्रधानास्तु यस्य कुप्यन्ति धातुषु।
शैथिल्यं तस्य धातूनां गौरवं चोपजायते॥4॥
ततो वर्णवलस्नेहा ये चान्येऽप्योजसो गुणाः।
प्रजन्ति क्षयमत्यर्थं दोषदृष्यप्रदूपणात्॥5॥ Ca.Ci. – 16/4,5
समुदीर्णे यदा पित्तं हृदये समवस्थितम्॥9॥
वायुना बलिना क्षिप्तं संप्राप्य धमनीर्दश।
प्रपत्रं केवलं देहं त्वयांसान्तरमाश्रितम्॥10॥
प्रदूष्य कफवाताकृत्यड्यांसानि करोति तत्।
पाण्डुहारिद्रहरितान् वर्णान् बहुविधांस्त्वचि॥11॥ Ca.Ci. – 16/9-11

---

[12] कन्युष्णानि रुच्यानि वातलेप्महर कृतान्नेषूपयुज्यन्ते संस्कारार्थमनेकध Su.Su. – 46/222
General qualities of vegetables as per Sushruta are Katu, Ushna Virya, palatable, pacifying Vata and Kapha Dosha. No description of qualities of Nishpava are mentioned. That is the reason, general qualities of vegetables should be taken.

[13] वृष्यः परं बातहरः स्निग्धोष्णो मधुरो गुरुः। बल्यो बहुमलः पुंस्त्वं माषः शीघ्रं ददाति च॥ Ca.Su. – 26/24
Pandu is manifested in an individual due to the excess consumption of Masha. This occurs probably due to the increase of Snigdha quality, Ushna Virya, Guru quality. This in turn leads to the vitiation of Pitta Dosha and affliction of Rasa Dhatu.

[14] तत्र तैलं हीण्यगीरवोपपन्नत्वाद्वातं जयंति सततमभ्यस्यमानं चातो हि रौक्ष्यरीत्यापोपपो विरुद्धगुणो भवति, विरुद्धगुणसन्निपाते हि भूयसाऽयमयजीयते, तस्मात्तैलं वातं जयति सत- Ca.Vi. – 1/14
Due to qualities of Snigdha, Ushna qualities, there will be the vitiation of Pitta Dosha and because of the Snigdha and Gourava qualities, there may be the affliction of Rasa Dhatu during the manifestation of Pandu disease.

[15] When an individual is undergoing sleeping during day time or exercise or sexual intercourse during the digestion of food substances, first of all, there will be reduced blood circulation to the alimentary canal which is an essential event happens. This is followed by deviation of blood supply to the skeletal muscles. This in turn leads to the improper digestion owing to the poor digestive secretion. In case of sleeping during day time, there will be excess digestive secretion secondary to parasympathetic nervous system stimulation occurs due to the sleeping during day time soon after the consumption of food.

[16] Let us take the example of Snehana (a type of pre operative procedure, oleation therapy). When a person undergoes Snehana therapy, he has to consume hot water only, no other substances are consumed. This is especially helpful in preparing the patient for proper Shodhana line of treatment. While Snehana therapy, there will be therapeutic inflammation of the stomach, small intestine. Consumption of hot water helps in the mobility of adipose tissue (secondary to depletion of carbohydrate) along with pathogen, thereby leading to the emaciation of the body. If a person is consuming black gram items etc, this will provide adequate amount of carbohydrate to the body and the person will not have desired effect of mobilisation of fat.

[17] Let us take the example of retention of urine because of suppression of urge of micturition. This may lead to poor renal blood supply resulting in the following events:
- Generalised oedema resulting from water and sodium retention
- Metabolic acidosis secondary to renal failure
- High concentration of no protein nitrogens, urea, creatinine and uric acid in particular

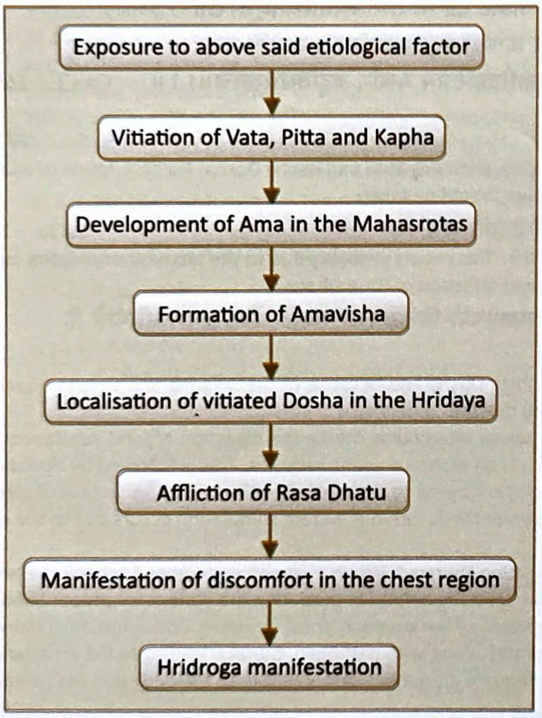
These may lead to the decreased production of erythropoietin which is an essential factor for the production of red blood corpuscles.

[18] All these kinds of activities are responsible for the activation of adrenal medullae which in turn responsible for the stimulation of sympathetic nervous system. This may lead to decreased alimentary secretions resulting the disturbance in the absorption of intrinsic factor, vitamin B12 and folic acid. Decreased renal arterial supply leads to the disturbance in the absorption of erythropoietin which leads to hampered blood formation.

[19] Excess alcohol consumption will lead to the disturbed metabolism similar to starvation. This will lead to the poor absorption of the substances from the alimentary canal as the person is consuming less amount of food substances.
- Another hypothesis can be put forth. When an individual consumes more amount of alcohol, that may lead to the inflammation of stomach, which may in turn lead to the gastric damage, which in turn disutbe the absorb the vitamin B12 which is one of the essential factor for the formation of haemoglobin.

[20] Excess consumption of mud is usually in the women who have undernutrition. Iron deficiency anemia is one of the commonest condition observed in the people who are consuming excess mud.

- Due to the consumption of *Nidana*, there will be vitiation of *Dosha*, *Pitta* in particular
- Vitiated *Dosha* then afflicts *Rakta Dhatu* as a result it brings laxity and heaviness in the *Dhatu*
- Heaviness of *Dhatu* manifest due to the disturbance of normal functioning of *Dhatu*. Patients suffering from *Pandu* lose their vitality, complexion, unctuousness and other properties of *Ojas* due to the morbidity of *Dosha* and *Dushya*.
- Aggravated *Pitta* expelled from *Hridaya* via ten channels, by powerful *Vata* circulates all over the body. Aggravated *Pitta* reaches the space between *Tvak* and *Mamsa* and brings about the abnormality in *Kapha, Vata, Rakta, Tvak* and *Mamsa* leading to the abnormal complexion like yellow, deep yellow and greenish discolouration.


Exposure to above said etiological factor
Vitiation of Vata, Pitta and Kapha
Development of Ama in the Mahasrotas
Formation of Amavisha
Localisation of vitiated Dosha in the Hridaya
Affliction of Rasa Dhatu
Manifestation of discomfort in the chest region
Hridroga manifestation

- Aggravated *Pitta* is responsible for the less production of *Poshaka* (nutrient) portion from *Rasadhatu*, leading to decreased formation of *Rakta Dhatu* in the body.

## Samprapti Ghataka

- **Dosha:** *Pitta Pradhana Tridosha* (*Pitta – Sadhaka; Ranjaka* and *Bhrajaka Pitta*); *Vata – Vyana Vata; Kapha–s Avalambaka*
- **Dushya :** *Rasa*
- **Agni :** *Jatharagni, Rasa Dhatvagni*
- **Ama :** *Jatharagnijanya*
- **Srotas:** *Rasavaha, Raktavaha Srotas*
- **Srotodushti :** *Sanga* and *Vimargagamana*
- **Udbhava sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana:** *Tvak*
- **Vyadhi Svabhava :** *Chrakari*
- **Rogamarga :** *Bahya*
- **Sadhysadhyata :** depending on the nature of vitiated *Dosha*, duration of illness

## Purvarupa of Pandu

**तस्य लिङ्गं भविष्यतः।**
**हृदयस्पन्दनं रौक्ष्यं स्वेदाभावः श्रमस्तथा॥1 2॥** Ca.Ci. – 16/12
**त्वफ्स्फोटनष्ठीवनगात्रसादमुद्धक्षणप्रेक्षणकूटशोथाः।**
**विण्मूत्रपीतत्वमथाविपाको भविष्यतस्तस्य पुरःसराणि॥3॥**
Ma.Ni. – Pandu/ 3

- **Hridaya Spandana**[21]: sensation of palpitation of chest
- **Roukshya**[22]: dryness of the body
- **Svedabhava**[23]: absence of sweating
- **Shrama**[24]: exhaustion after doing little amount of activity
- **Tvak Sphotana**[25]: cracks in the skin
- **Shtivana:** sputum production[26]

---

[21] This is attributable to poor blood supply to the heart via coronary vessels. Thus, when a person starts doing the physical activity, he may have awareness of one's own heart beat. This is observed when an individual is having hypovolemia.

[22] This is attributable to either peripheral vaso constriction to shift the continuous blood supply to the core of the body i.e. brain and heart or mobilisation of fat owing to increased metabolic activity which can occur as a result of anaerobic metabolic activity.

[23] This is attributable to poor peripheral vaso constriction due to the shift of the blood from the skin to the core of the body i.e. brain and heart.

[24] This is attributable to decreased store of the adipose tissues from subcutaneous tissues, buttocks, breast and abdomen which occurs as a result of fat mobilisation secondary to lack of carbohydrate availability to the body.

[25] This is attributable to peripheral vaso constriction.

[26] This can be attributable to response of the human body to the respiratory allergens or pathogens or microorgaanisms entering through respiratory tract which may happen as a result of lowered immune status.
- Lowered immunity may occur as a result of poor formation of WBC, which is formed due to the pluripotent haemopoietic stem cells (PHSC). These precursor cells are produced in red bone marrow present in the bones.
- In anemia, aplastic anemia in particular, all cells RBCs, WBCs, platelets are produced in less quantities. That may be the reason for the susceptibility of infection.
- Respiratory tract is the primary channel for the entry of most of the pathogens.

- Sluggish movement of the body parts[27]
- Eating the mud[28]
- Swelling around orbital region[29]
- Yellowish discolouration of urine and fecal matter[30]
- Impaired digestion in the body[31]

## Samanya Lakshana of Pandu

संभूतेऽस्मिन् भवेत् सर्वः कर्णक्ष्वेडी हतानलः।
दुर्बलः सदनोऽन्नद्विट् श्रमभ्रमनिपीडितः॥13॥
गात्रशूलज्वरश्वासगौरवा रुचिमान्नरः।
मृदितैरिव गात्रै पीडितोन्मथितैरिव॥14॥
शूनाक्षिकूटो हरितः शीर्णलोमा हतप्रभः।
कोपनः शिशिरद्वेषी निद्रालुः ष्ठीवनोऽल्पवाक्॥15॥
पिण्डिकोद्वेष्टक ट्यूरुपादरुक्सदनानि च।
भवन्त्यारोहणायासैर्विशेषश्चास्य वक्ष्यते॥16॥ Ca.Ci. – 16/13-16

- Ringing in the ears[32] e.g. tinnitus
- Loss of appetite[33]
- Weakness of the body[34]
- Sluggish movements of the body[35]
- Aversion to take food substances[36]
- Development of fatigue after doing the activities[37]
- Giddiness[38]
- Pricking type of pain all over the body [39]
- Fever[40]
- Breathing discomfort[41]
- Heaviness of the body parts[42]
- Tastelessness[43]

---

[27] This is attributable to a poor blood circulation among small vessels of the body i.e. sludging of blood.

[28] Excess consumption of mud is usually in the women who have undernutrition. Iron deficiency anemia is one of the commonest condition observed in the people who are consuming excess mud.

[29] This can be attributable to pica, where the person is likely to eat mud. This is not a healthy practice, as this may lead to several infections of alimentary canal or helminthic manifestation.

[30] This may be attributable to either hepatocellular jaundice or obstructive jaundice. In this situation, the person may have either poor protein synthesis or deficiency of other nutrients. When an individual is having increased RBC destruction, the person may have lemon yellow tinge discolouration of the skin and mucous membranes.

[31] In case of impaired digestion in the stomach, the person may have decreased absorption of intrinsic factor whereas impaired digestion in the large intestine, there is a lack of absorption of vitamin B12, folic acid etc. Thus, impaired digestion may have impaired digestion.

[32] This is attributable to shift of blood supply from the ears to the core of the body i.e. brain and heart. Thus, the person may have tinnitus if he is having anemia. This shift may lead to the reduction in the formation of perilymph and endolymph in the inner ears.

[33] This is attributable to poor hydrochloric acid formation which further leads to the deficient absorption which further leads to the deficit in the absorption of intrinsic factor. When an individual is having disturbance in the large intestine, there will be increased secretion in the colon and further there will be decreased secretion of vitamin B12 and folic acid. These are the essential factors for the formation of blood. The person having loss of appetite for longer time, he may have loss of appetite.

[34] This is attributable to poor storage of carbohydrate which in turn leading to the mobilisation of stored fat. This will lead to the emaciation of body and this may be the reason for the weakness of the body.

[35] This may be attributable to hypovolemia. This may occur in case of haemolysis or in case of profuse haemorrhage etc. This may occur as a result of cardiac depression or increased capillary permeability or release of toxins by ischemic tissue or sludging of blood in small vessels.

[36] This may be attributable to dilute hydrochloric acid which in turn leads to inactivation of pepsinogen and the person may have loss of appetite and this in turn leads to the aversion to take food substances. This may lead to deficit in the absorption of intrinsic factor and vitamin B12 and folic acid.

[37] This can be attributable to hypovolemia. In this situation, there will be more blood circulation to the core of the body i.e. brain and heart and there will be less circulation to the skeletal muscles, thus, when an individual makes activity, he will have more fatigue which is a sequel of poor blood supply to the skeletal muscles.

[38] This may be attributable to syncopal episodes which leads to poor cerebral circulation.

[39] This can be attributable to generalised cellular degeneration. Following effects are observed in case of cellular degeneration.

1. Diminished active transport of sodium and potassium ions through the cell membrane. Due to this, sodium and chloride accumulate in the cells and potassium is lost from the cells leading to hydropic degeneration.
2. Mitochondrial activity in the liver cells and in many other tissues of the body, becomes severely depressed.
3. Lysosomes in the cells in widespread tissue areas begin to break open, with intracellular release of hydrolases that cause further intracellular degeneration.
4. Cellular metabolism of nutrients, such as glucose, eventually becomes greatly depressed in the last stages of shock.

The above said metabolic derangements lead to the manifestation of metabolic acidosis of the human body.

This may be responsible for the pricking type of pain all over the body.

[40] This may be attributable to proliferation of microorganisms leading to progression of infection. This may occur because of deficient formation of PHSC (pluripotent haemopoietic stem cell) which is a precursor of RBC, WBC and platelets. Lack of formation of PHSC may be the reason for the frequent episode of fever in an individual.

[41] This may be attributable to increased cardiac burden leading to tachycardia. Breathlessness can be observed either in sitting and recumbent posture unlike cardiac failure where initially the person will have breathlessness on exertion. On severity of cardiac disease, he will have paroxysmal nocturnal dyspnoea and in severe form of cardiac dysfunction, he will have orthopnoea and in fatal cardiac disease, he will have Cheyne Stokes respiration. Whereas in case of respiratory disease, he will have breathlessness during inspiration or expiration.

[42] Refer the context of sluggish movements of the body

[43] Refer the context of loss of appetite

- Patient feels as if his limbs are kneaded, pressed or churned
- Swelling in the periorbital region
- Greenish discolouration in the skin and body parts
- Loss of hairs from the body[44,45]
- Lack of lustre[46]
- Irritability[47]
- Aversion to cold substances[48]
- Excessive sleepishness[49]
- Spitting[50]
- Less speech[51]
- Muscle cramps in the calf region[52]
- Pain the waist region[50]
- Pain in the thigh region[50]
- Pain in the lower limbs[50]
- Breathlessness on exertion[53]

## Sankhya Samprapti of Pandu

### As per Charaka – 5 types

1. *Vataja*
2. *Pittaja*
3. *Kaphaja*
4. *Sannipataja*
5. *Mrid Bhakshanajanya*

### As per Sushruta – 4 types

1. *Vataja*
2. *Pittaja*
3. *Kaphaja*
4. *Sannipataja*

## Vataja Pandu Lakshana

**आहारैरुपचारैश्च वातलैः कुपितोऽनिलः।**
**जनयेत्कृष्णपाण्डुत्वं तथा रुक्षारुणाङ्गताम्॥17॥**
**अङ्गमर्द रुजं तोदं कम्पं पार्श्वशिरोरुजम्।**
**वर्चःशोषास्यवैरस्यशोफानाहबलक्षयान्॥18॥** Ca.Ci. – 16/17-18

- Blackish discolouration
- Yellowish white discolouration
- Roughness of the body parts
- Redness of the body parts

---

**GK**

[44] This is attributable to poor peripheral arterial circulation which results in thinning of the skin and shininess of the skin. This is attributable to peripheral vaso constriction resulting in deviation of blood supply to the core of the body i.e. brain and heart.

[45] This is attributable to poor peripheral circulation which leads to thinning of the skin, loss of the hairs from the body

[46] This is attributable to poor peripheral circulation as it will lead to cracks of the skin or dryness of the skin and there will be less moisture of the skin in due course of time.

[47] This is attributable to poor cerebral circulation as a neurological dysfunction.

[48] This is attributable to peripheral vaso constriction where in the person will have feeling of coldness. As a result, the person will often have aversion to cold exposure.

The human beings can able to perceive different gradations of cold and heat, from freezing cold to cold to cool to indifferent to warm to hot to burning hot sensations. Thermal gradations are discriminated by at least 3 types of sensory receptors: cold receptors, warmth receptors and pain receptors.

The cold and warm receptors are located immediately under the skin at discretely separated spots. In most parts of the body, there are 3 to 10 times as many cold spots as warm spots. The number in different areas of the body varies from 15 to 25 cold spots per square centimeter in the lips to 3 to 5 cold spots per square centimeter in the finger to less than 1 cold spot per square centimeter in some broad surface areas of the trunk.

When a cold receptor is suddenly subjected to an abrupt fall in the temperature, it becomes strongly stimulated at first, but this stimulation fades rapidly during the first few seconds and progressively more slowly during the next 30 minutes or more.

Cold and warm receptors are stimulated by the changes in their metabolic rates and these changes result from alteration in the rate of intracellular chemical reactions more than 10° C. In other words, thermal detection probably results not from direct physical effects of heat or cold on the nerve endings, but from chemical stimulation of nerve endings as modified by temperature.

[49] Excessive sleepishness can be attributable to poor cerebral circulation as a result of syncopal attack. It occurs in severe variety of anemia.

[50] When an individual is exposed to multiple aetiological factors, three parts of the body are exposed – gastrointestinal tract, upper respiratory passages and skin. Skin is considered to be the most stable organ as far as the appearance of clinical symptoms in relation to exposure to aetiological factors are concerned.

Owing to the poor formation of pluripotent haemopoietic stem cell (PHSC), RBCs, WBCs and platelet formation become reduced, thereby the person may be vulnerable to the respiratory compromise which is leading to the formation of sputum during the course of the disease.

[51] As per Ayurveda fundamentals, Karma (functions) of human body is of three categories – Kayika (physical), Vachika (speech related) and Manasika (mental). Whereas as per western medical understanding, functions are either physical or mental. For any activity to happen smoothly, it requires certain amount of energy and in the person suffering from Pandu, he will have Nissara (lack of nutrition). Kayika, Vachika and Manasika functions get disturbed in the person who is suffering from Pandu. In olden days, speech related function was related to study of Vedas, treasure of knowledge. It is a custom that Vedas are not written by anybody, the verses present in Veda are recited and it requires huge amount of energy for proper pronunciation. In Pandu patient, speech becomes difficult.

[52] These clinical features are attributable to anaerobic metabolic activities leading to the excess concentration of lactic acid manifesting the clinical condition called metabolic acidosis.

[53] This is attributable to tachycardia develops after performing physical exercise and during this activity, there will be poor blood supply to myocardium leading to breathlessness on exertion.

- General malaise
- Discomfort
- Pricking type of pain
- Tremors
- Pain in the sides of the chest
- Pain in the head region
- Dryness of stools (very hard stools)
- Impaired taste perception
- Swelling
- Distension of the abdomen
- Loss of strength

## Pittaja Pandu Lakshana

**पित्तलस्याचितं पित्तं यथोक्तः स्वैः प्रकोपणैः।**
**दूषयित्वा तु रक्तादीन् पाण्डुरोगाय कल्पते॥19॥**
**स पीतो हरिताभो वा ज्वरदाहसमन्वितः।**
**तृष्णामूर्च्छापिपासार्तः पीतमूत्रशकृन्नरः॥20॥**
**स्वेदनः शीतकामश्च न चान्नमभिनन्दति।**
**कटुकास्यो न चास्योष्णमुपशेतेऽम्लमेव च॥21॥**
**उद्गारोऽम्लो विदाहश्च विदग्धेऽन्नेऽस्य जायते।**
**दौर्गन्ध्यं भिन्नवर्चस्त्वं दौर्बल्यं तम एव च॥22॥** Ca.Ci. – 16/19-22

- Yellowish discolouration of the body parts
- Greenish discolouration of the body parts
- Fever
- Burning sensation
- Thirst
- Altered state of consciousness
- Morbid thirst
- Yellowish discolouration of urine
- Yellowish discolouration of faecal matter
- Excessive sweating
- Affinity or liking towards cold substances
- Aversion to take food substances
- Pungent taste in the mouth
- Patient will be uncomfortable to take hot and sour substances
- Sour eructations
- Burning sensation during the digestion of food
- Foul smell from the body
- Unformed stool or diarrhoea
- Debility
- Sensation of darkness in front of the eyes

## Kaphaja Pandu Lakshana

**विवृद्धः श्लेष्मलैः लेष्मा पाण्डुरोगं स पूर्ववत्।**
**करोति गौरवं तन्द्रां छर्दिं श्वेतावभासताम्॥23॥**
**प्रसेकं लोमहर्षं च सादं मूर्च्छां भ्रमं क्लमम्।**
**श्वासं कासं तथाऽऽलस्य मरुचि वाक्स्वरग्रहम्॥24॥**
**शुक्लमूत्राक्षिवर्चस्त्वं कटुरुक्षोणका मताम्।**
**श्वयथुं मधुरास्यत्वमिति पाण्डामयः कफात्॥25॥** Ca.Ci. – 16/23-25

- Heaviness of the body parts
- Drowsiness
- Vomiting
- Whitish discolouration of the body parts
- Excess salivation
- Horripulation
- Heaviness or general malaise
- Altered state of consciousness
- Giddiness
- Fatigue without doing any activities
- Breathing discomfort
- Cough
- Laziness
- Tastelessness
- Loss of speech and voice
- Whitish discolouration of the eyes
- Whitish discolouration of the urine
- Whitish discolouration of faecal matter
- Liking to take pungent substances
- Liking to take dry substances
- Liking to take hot substances
- Swelling or oedema
- Sweetish taste in the mouth

## Sannipataja Pandu

### Mrid Bhakshanajanya Pandu Lakshana:

**मृत्तिकादनशीलस्य कुप्यत्यन्यतमो मलः।**
**कषाया मारुतं, पित्तमूषरा, मधुरा कफम्॥27॥**
**कोपयेन्मृद्रसादींश्च रौक्ष्याद्भुक्तं विरुक्षयेत्।**
**पूरयत्यविषचैव स्त्रोतांसि निरुणद्धि च॥28॥**
**इन्द्रियाणां बलं हत्वा तेजो वीयजसी तथा।**
**पाण्डुरोगं करोत्याशु बलवर्णाग्निनाशनम्॥29॥**
**शूनगण्डाक्षिकूटभ्रूः शूनपान्नाभिमेहनः।**
**क्रिमिकोष्ठोऽतिसार्येत मलं सास्क कफान्वितम्॥** Ca.Ci. – 16/27-30

- One who consumes mud (clay) causes aggravation of either *Vata, Pitta* or *Kapha*. Consumption of mud having astringent taste vitiates *Vata,* consumption of mud having alkaline nature will vitiate *Pitta* and consumption of mud having sweet taste will vitiate *Kapha Dosha.*

- Due to the ununctuousness, there will be vitiation of *Rasa* etc due to the consumption of mud.
- Poor functioning of *Indriya*
- Loss of strength
- Loss of complexion
- Loss of digestive function
- Swelling of the temporal region
- Swelling of the periorbital region
- Swelling of eyes
- Swelling of lower limbs
- Swelling of periumbilical region
- Swelling of genital organs
- Presence of *Krimi* in the *Mahasrotas*
- *Diarrhoea* associated with mucus and blood

## Asadhya Lakshana of Pandu

पाण्डुरोगश्चिरोत्पन्नः खरीभूतो न सिध्यति।
कालप्रकर्षाच्छूनो ना यश्च पीतानि पश्यति॥3 1
वाल्पविकं सकफं हरितं योऽतिसार्यते।
दीनः श्वेतातिदिग्धाङ्गच्छर्दिमूर्च्छातपादितः॥3 2॥
स नास्त्यक्षयाद्यश्च पाण्डुः श्वेतत्वमाप्नुयात्।
इति पञ्चविधस्योक्तं पाण्डुरोगस्य लक्षणम्॥3 3॥ Ca.Ci. – 16/31-33
पाण्डुरोगश्चिरोत्पन्नः खरीभूतो न सिध्यति।
कालप्रकर्षानानां यो वा पीतानि पश्यति॥1 2॥
बद्धाल्पविट् सहरितं सकफं योऽतिसार्यते।
दीनः श्वेतातिदिग्धाङ्गच्छर्दिमूर्च्छादितः॥1 3॥
स नास्त्यसृक्क्षयायश्च पाण्डुः श्वेतत्वमाप्नुयात्।
पाण्डुदन्तनखो यस्तु पाण्डुनेत्रश्च यो भवेत्।
पाण्डुसंघातदर्शी च पाण्डुरोगी विनश्यति॥1 4॥
अन्तेषु शूनं परिहीणमध्यं म्लानं तथाऽन्तेषु च मध्यशूनम्।
गुदे च शेफस्यथ मुष्कयोश्च शूनं प्रताम्यन्तमसंशकल्पम्।
विवर्जयेत्पाण्डुकिनं यशोऽथ तथाऽतिसारज्वरपीडितं च॥1 5॥

Ma.Ni. – Pandu/ 12-15

- The person suffering from *Pandu* for longer duration will be associated with excessive roughness[54]
- Due to the chronicity, the person will be presented with oedema[55]
- Patient sees the objects as yellow[56]
- Constipation or very little amount of faecal matter will be formed[57]
- Diarrhoea with greenish discolouration
- Diarrhoea with whitish discolouration or with mucus
- Dull look[58]
- Excessive paleness as if he is smeared[56]
- Excessive vomiting faint and excess thirst
- Whitish discolouration of the body parts due to deficiency of the blood[59]
- Swelling in the extremities[60] and emaciation in the trunk[61]
- Swelling in both extremities, trunk, anal region, genital organs and scrotum[62]
- Frequent fainting[63]
- Altered consciousness[61]
- Associated with diarrhoea[64] or fever[65]

---

G K

[54] This is attributable to peripheral vaso constriction which may persist for longer duration. In this situation, the person may have shift of the blood supply to the core of the body, brain and heart in particular which in turn may lead to roughness of the skin.

[55] Oedema in the patient of anemia can be attributable to either hypoproteinemia (less concentration of proteins in the intravascular compartment or increased concentration of proteins in the interstitial compartment) or less concentration of haemoglobin in the blood which itself is a protein. This can also happen because of poor hepatic function or poor protein absorption from the alimentary canal.

[56] This clinical condition can be observed in case of increased haemolysis or in case of hepatocellular dysmetabolism.

[57] This can be attributable to poor circulation in the alimentary canal where shift of the circulation to the core of the body can be observed leading to poor gastrointestinal secretions leading to the very hard faecal matter. Thus, the person may have the clinical presentation of constipation.

[58] These features are attributable to poor peripheral circulation leading to the pallor which can be further seen in eyes, tongue, palm, nails and even in the skin.

[59] This can be attributable to poor peripheral circulation and increased core circulation, brain and heart in particular. This can be observed in severe forms of anemia.

[60] This can be attributable to poor circulatory failure where we can observe hypovolemic shock, where sludging of the blood in very small blood vessels can be present.

[61] This can be attributable to poor cellular nutrition which initially occurs as carbohydrate depletion which in turn leads to the rapid depletion of the accumulated fat in the subcutaneous tissues in buttocks, breasts and abdomen in particular.

[62] This can be attributable to excess hypoproteinemia which can lead to reduced oncotic pressure in the capillaries which in turn leads excess accumulation of the fluid in the interstitial compartment.

[63] These are attributable to poor cerebral circulation and this may be observed in severe form of anemia.

[64] This can be attributable to non absorption of substances formed in the large intestine because of bacterial activity which are vitamin K, vitamin B12, thiamine, riboflavin etc. Among these substances, vitamin B12 and thiamine are directly responsible for the the production of RBCs.

[65] As far as genesis of blood cells are concerned, red blood corpuscles (RBCs), white blood corpuscles (WBCs) and platelets are formed by one maternal cell called pluripotent haemopoietic stem cell (PHSC). When the person is suffering from fever for longer duration, this will lead to the increased formation of WBCs and this will lead to decreased formation of RBCs and this mechanism may lead to the manifestation of

## Upadrava of Pandu

उपद्रवास्तेष्वरुचिः पिपासा
छर्दिर्ज्वरो मूरुजाऽग्निसादः।
शोफस्तथा कण्ठगतोऽबलत्वं मूर्च्छा क्लमो हृद्यवपीडनं च॥13॥

Su.Ut. – 44/13

- Tastelessness
- Thirst
- Vomiting[66]
- Fever[67]
- Headache[68]
- Loss of appetite
- Swelling in the throat region[69]
- Loss of strength[70]
- Altered state of consciousness[71]
- Fatigue without doing any activities[72]
- Discomfort in the chest region[73]

### Key summary of the chapter

पाण्डुना वक्ष्यमाण हरितादि वर्णेभ्यः प्रधानेन वर्णेनोपलक्षितो रोगः पाण्डुरोगः॥ Chakra, Ca.Ci. – 16/1,2

- Panduroga is a disease which is characterised by abnormal discolouration of the skin, abnormal texture of the skin. This may be yellowish discolouration or whitish discolouration or yellowish discolouration. Abnormal texture of the skin may be in the form of cracks of the skin or rough skin can be seen in the patient who are suffering from discolouration.
- Pandu is a Rasavaha Srotovikara where Pitta Dosha dominance is observed, Rasa Dhatu involvement is identified throughout the disease process with Rasavaha Sroto involvement and Sanga and Vimargagamana is the type of Srotodushti,
- As far as Sankhya Samprapti of Pandu is concerned, 5 types of Pandu are explained. They are Vataja, Pittaja, Kaphaja, Sannipataja and Mrid Bhakshanaja Pandu. Prime Lakshana observed in Mrid Bhakshananya Pandu is character is Krimikoshtha.
- Any clinical condition which interferes in the transformation of nutrients which can be utilised by the human or any condition associated with profuse bleeding or any condition associated chronic infection are the probable causes of manifestation of anemia.

### Previous questions asked in the university examinations

#### Long essay questions

- Define Pandu. Explain Nidana, Samprapti, Purvarupa, Rupa, Asadhya Lakshana of Pandu
- Define Pandu, explain Nidana Panchaka of Pandu
- Explain Nidana Panchaka of Pandu

#### Short essay questions

- Write the Pratyatma Lakshana of Pandu
- Write the Samprapti and Samprapti Ghataka of Pandu
- Explain Krimi Koshtha

---

anemia.

[66] While analysing vomiting in the patient of anemia, we have to understand two pathological concepts – first, there will be a possibility of haemorrhage in the alimentary canal leading to either haematemesis or malena. Secondly, we have to understand the possibility of reduction in gastric juices which contain hydrochloric acid, pepsinogen, intrinsic factor and mucus. When there is deficiency of intrinsic factor, there is a possibility of more serious consequences such as nutrition deficiency anemia etc.

[67] This can be attributable to the poor WBC function which occurs as a sequel of poor formation of pluripotent haemopoietic stem cell (PHSC) which results in rapid manifestation of infection in the individuals who are having poor PHSC.

[68] This can be attributable to either respiratory infection or allergic respiratory manifestation which leads to the paranasal sinus inflammation or infection. This usually presents with headache.

[69] Whenever, the person is suffering from chronic anemia, one of the mechanism happens is formation of webs and rings in the oesophagus. Swelling in the throat refers to the appearance of ring in upper oesophageal junction. In the western medicine, this is termed as Plummer Vinson syndrome.

[70] This can be attributable to poor peripheral circulation which in turn may lead to hyponatremia, hypokalemia, hypocalcemia and dehydration. As every activity involving either skeletal muscles, smooth muscles, cardiac muscles and every nerve conduction requires the above mentioned electrolytes and water, loss or poor strength is inevitable in the patient of Pandu (anemia).

[71] This is attributable to poor cerebral circulation.

[72] This can be attributable to poor blood supply to the skeletal muscles. In this occasion, the person may have shift of blood circulation to the core of the body i.e. brain and heart. This might be the reason for the development of fatigue without any physical activities.

[73] This can be attributable to decreased blood supply to the cardiac muscles owing to poor coronary circulation. In this situation, the person may have tachycardia by doing even the slightest amount of activity. This will lead to poor coronary circulation and this in turn may lead to chest discomfort secondary to ischemia which may occur as a result of exertion.

- Explain Mrid Bhakshanajanya Pandu
- Enumerate the types of Pandu

## MCQs

1. **Krimi Koshtha is observed in which of the following type of Pandu?**
   a. Kaphaja Pandu;
   b. Vataja Pandu;
   c Mrid Bhakshanajya Pandu;
   d. All of the above

*Answer*: (c)

2. **Mrid Bhakshana in the causation of Pandu. Here, the term Mrid Bhakshana refers to**
   a. Jnapaka Hetu;
   b. Pradhanika Hetu;
   c. Vyadhi Hetu;
   d. Vyanjaka Hetu

*Answer*: (c)

3. **Sankhya Samprapti of Pandu is**
   a. 4; b. 3;
   c. 5; d. 2

*Answer*: (c)

4. **Pandu is ................Srotogata Vikara.**
   a. Mamsavaha; b. Rasavaha;
   c. Raktavaha; d. Medovaha

*Answer*: (b)

5. **Sankhya Samprapti of Pandu as per Sushruta is**
   a. 3; b. 4;
   c. 5; d. 7

*Answer*: (b)

6. **Hrid drava is the Purvarupa of**
   a. Tamaka Shvasa;
   b. Raktapitta;
   c. Pandu;
   d. Amavata

*Answer*: (c)

7. **Pradhana Dosha involved in the manifestation of Pandu is**
   a. Vata; b. Pitta;
   c. Kapha; d. Vata and Kapha

*Answer*: (b)

8. **The term 'Anteshu Shunam Parihina Madhyam' is associated with**
   a. Shotha; b. Raktapitta;
   c. Pandu; d. Gulma

*Answer*: (c)

9. **The lifespan of senescent RBC is usually**
   a. 100 days; b. 80 days;
   c. 150 days; d. 120 days

*Answer*: (d)

10. **Sankhya Samprapti of Pandu as per Harita is**
   a. 4; b. 5;
   c. 6; d. 7

*Answer*: (c)

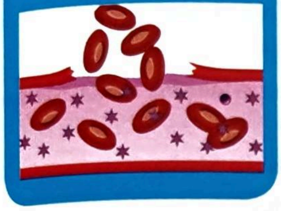
### Chapter resources

- https://arunachalagrace.blogspot.com/2010/02/
- Charaka Samhita, Chikitsa Sthana – 16th chapter: Pandu Chikitsa Adhyaya
- Sushruta Samhita Uttara Tantra – 44th chapter: Panduroga Pratishedha Adhyaya
- Ashtanga Hridaya Nidana Sthana – 13th chapter: Panduroga Shopha Visarpa Nidana Adhyaya
- Ashtanga Sangraha Nidana Sthana – 13th chapter: Pandu Shopha Visarpa Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton

***

CHAPTER

21



# Raktapitta

**Learning Objectives**

- To learn the concept of Raktapitta
- To learn the Nidana Panchaka of Raktapitta explained in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To learn the definition of Raktapitta
- To describe the different routes of normal as well as abnormal Rakta Pravritti
- To know the Svabhava (nature) of Raktapitta
- To enlist the types of Raktapitta
- To describe Vishishta Lakshana of Raktapitta
- To enlist the Upadrava of Raktapitta
- To know the Sadhyasadhyata of Raktapitta with current understanding

## Introduction

*Raktapitta* **(see Figure 59)** is a spectrum of diseases where there is tendency of spontaneous bleeding across natural orifices or through skin. Vitiation of *Pitta Dosha* in relation to *Drava* (liquid) quality will lead to the increase of vitiated blood. This will increase the volume abnormally leading to the expulsion of abnormally vitiated blood through natural orifices and skin.

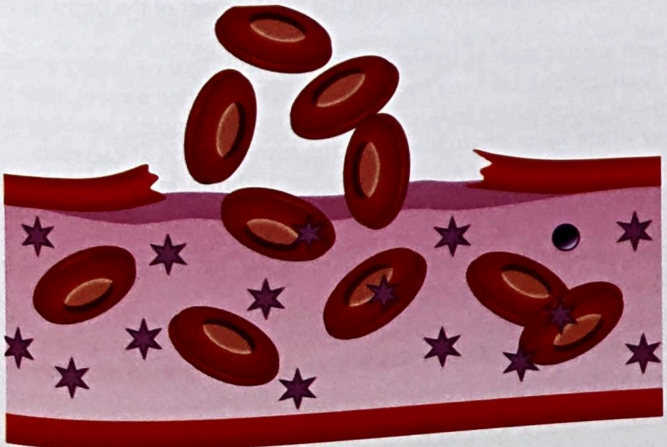


**Figure 59:** Samprapti of Raktapitta

**पित्तं यथाभूतं लोहितपित्तमिति संज्ञां लभते** Ca.Ni. – 2/3
**संसर्गाल्लोहितप्रदूषणाल्लोहितगन्धवर्णानुविधानाच पित्तं लोहितपित्तमित्याचक्षते॥5॥** Ca.Ni. – 2/5

**संयोगाद्दूषणात्तत्तु सामान्याद्गन्धवर्णयोः।**
**रक्तस्य पित्तमाख्यातं रक्तपित्तं मनीषिभिः॥9॥** Ca.Ci. – 4/9

Abnormal vitiation of *Pitta Dosha* or the vitiated *Pitta* in a particular stage is observed in *Raktapitta*. In this condition, there will be abnormally vitiated *Pitta* which combines with abnormally vitiated *Rakta* combines together leads to the manifestation of *Raktapitta*. In this condition, abnormal *Pitta* as well as *Rakta* will have similar colour, smell.

## Nidana of Raktapitta

**यदा जन्तुर्यवकोद्दालककोरदूषप्रायाण्यन्नानि भुते, भृशोष्णातीक्ष्णमपि चान्यदन्नजातं निष्पावमा षकुलत्थसूपक्षारोपसंहितं, दधिदधिमण्डोदश्विकराम्ल काञ्जिकोपसेकं वा, वाराहमाहिषाविक मात्स्यगव्यपिशितं, पिण्याकपिण्डालुशुष्कशाकोपहितं मूलकसर्षपलशुनकर अशिशुमधुशिग्रु (खंड- यूष) भूस्तृणसुमुखसुरसकुठेरकगण्डीरकालमाल कपर्णा सक्षवकफणिज्झकोपदेशं, सुरासौवीरतुषोद कमैरेयमेदकमधूल कशुक्तकुवलबदाम्लप्रायानुपानं वा, पिष्टान्नोत्तरभूयिष्ठम् उष्णाभितप्तो**

वाऽतिमा- श्रमतिवेलं वाऽऽमं पयः पिबति, पयसा समश्नाति रौहिणीक, काणकपोतं वा सर्षपतैलक्षारसिद्धं,कुलत्थपिण्याकजाम्बवल कुचपक्कैः शौक्तिकैर्वा सह क्षीरं पिबेत्युष्णाभितप्तः तस्यैवमाचरतः पित्तं प्रकोपमापद्यते, लोहितं च स्वप्रमाणमतिवर्तते।

तस्मिन् प्रमाणातिवृत्ते पित्तं प्रकुपितं शरीरमनुसर्पद्यदेव यकृत्प्लीहप्रभवाणां लोहितवहानां च स्रोतसां लोहिताभिष्यन्दगुरूणि मुखान्यासाद्य प्रतिरुन्ध्यात् तेदेव लोहितं दूषयति॥4॥ Ca.Ni. – 2/4

क्रोधशोकभयायासविरुद्धान्नातपानलान्।
कवम्ललवणक्षार तीक्ष्णोष्णातिविदाहिनः॥3॥
नित्यमभ्यसतो दुष्टो रसः पित्तं प्रकोपयेत्।
विदग्धं स्वगुणैः पित्तं विहत्वाशु शोणितम्॥4॥
ततः प्रवर्तते रक्तमूर्ध्वं चाधो द्विधाऽपि वा। Su.Ut. – 45/3-5
धर्मव्यायामशोकाध्वव्यवायैरतिसेवितैः।
तीक्ष्णोष्णाक्षारलवणैरम्लैः कटुभिरेव च॥1॥

पित्तं विदग्धं स्वगुणैर्विदहत्याशु शोणितम्। Ma.Ni. – Raktapitta/ 1,2

- Excess intake of *Yava*[1] (barley), *Kola*[2] (*Ziziphus jujuba*), *Uddalaka*[3] (a variety of rice), *Koradusha*[4]
- Excess intake of substances which are having strong potency and hot in quality[5] such as chillies etc
- Excess intake of *Nishpava*,[6] *Masha*,[7] *Pinyaka*[8], *Kulattha*,[9] *Kshara*[10]
- Excess intake of *Dadhi*[11], *Dadhimanda*[12], *Udashvit*[13], *Katvara*, *Amlakanjika*[14]
- Excess intake of flesh of *Varaha*, *Mahisha*, *Avika*, *Matsya* and Go
- Excess intake of *Pindalu*, *Shushka Shaka*
- Excess intake of *Mulaka*, *Sarshapa*, *Lashuna*, *Karanja*, *Shigru*, *Madhushigru*, *Sura*, *Souvira*, *Tushodaka*, *Maireya*, *Medaka*, *Madhulaka*, *Shukta*, *Kuvala*, *Badara* and sour

---

GK

[1] As per Charaka, the qualities of Yava are Ruksha (dry), Shita (cold in potency), Aguru (lightness), Madhura and Kashaya Rasa (sweet and astringent taste), responsible for Sthairya (stability), Balya (strength promoting), mitigation of Kapha dominant Vikara. Among above mentioned qualities of Yava, Laghu Guna is having the affinity towards the increase of Pitta Dosha in the body. Ref: Ca.Su. - 27/19-20

[2] As per Bhava Prakasha Nighantu, Purvakhanda, Mishra Prakarana, 7th chapter, Amradi Phala Varga, qualities of Kola are Grahi (constipating), Ruchya (tasty), Ushna (hot in potency), Vatala and Kapha Pittakara (responsible for the vitiation of all three Dosha), Guru (heavy to digest) and helpful in mitigating Atisara (diarrhoea). Whereas in Charaka Samhita, the qualities of Kola are mentioned in context of Badara i.e. Madhura (sweet in taste), Snigdha (unctuousness), Bhedana (facilitating the movement of Purisha in the formed and unformed form without eliminating the water portion from the large intestine) , Vatapittahara (mitigating Vata and Pitta Dosha. In this context, Raktapitta may get manifested due to the increase of Snigdha Guna, Ushna Virya (hot potency) in the body.

[3] As per Charaka, Uddalaka is a variety of Shashika Shali. The qualities are Sheeta (cold potency), Snigdha, (unctuousness) Aguru (lightness) Svadu (sweet taste), Tridoshahara (mitigation of all Tridosha), Sthira (stability). In this occasion, there may be the possibility of increase of Pitta because of the increase of Snigdha and Laghu Guna in the body.

[4] Koradusha is a variety of Shamidhanya, it has the qualities of Laghu (lightness), Vatala (Vata increasing), Kapha Pittahara (mitigating Kapha and Pitta), Shita (cold potency), Sangrahi (constipating by reducing water content) and Shoshana (dryness). The consumption of substances prepared out of Koradusha may produce Raktapitta by the increase of Laghu (lightness) quality.

[5] This term refers to the consumption of substances having Ushna Virya. Most of the Ushna Virya substances will have impact on deeply situated tissues from Rasa Dhatu to Shukra Dhatu

[6] As per Charaka in Ca.Su. – 27/33, Nishpava is having the qualities of vitiating of Vata and Pitta Dosha. Excess consumption will lead to the vitiation of either Pitta or Vata Dosha.

[7] As per Charaka in Ca.Su. – 27/24, the qualities of Masha (black gram) are Vrishya (aphrodisiac), Vatahara (alleviating Vata Dosha), Snigdha (unctuousness), Ushna (hot in potency), Madhura (sweet in taste), Guru (heavy to digest), Balya (strength promoting), Bahumalakara. Pitta Dosha will get vitiated in the patient of Raktapitta due to the increase of Snigdha and Ushna qualities.

[8] This refers to the remnants of sesamum seeds or mustard seeds after removal of oil in them by keeping these seeds in machine to extract oil.

[9] Kulattha (horse gram) is considered to be defintely responsible for the manifestation of Amlapitta. Amlapitta is a Pitta dominant disease and Raktapitta is also considered to be the manifestation of Pitta dominance. Depending upon the site of the involvement of the Dosha Dushya Sammurchana in Rakta Dhatu, the person may develop Raktapitta.

[10] As per Sushruta in Su.Su. - 11/5, Kshara is having following qualities and actions such as Ushna (hot in potency), Tikshna (highly irritating to the tissues), Pachana (Ama Pachana or Vrana Pachana), Shodhana (purification), Lekhana (removes the accumulation present inside the tubular structure or cells), Shoshana (dryness), Dahana (cauterisation) and Tridoshahara (reduces all three Dosha if properly administered). Excess exposure to Kshara may lead to vitiation of Pitta Dosha and may vitiate Rakta Dhatu leading to the manifestation of Raktapitta.

[11] As per Charaka, in Ca.Su. – 27/227, Dadhi is the causative factor for the manifestation of Raktapitta. As per Sushruta, in Su.Su. 45/66, consumption of Amla Dadhi (curds with sour taste) is responsible for the vitiation of Kapha and Pitta and Atyamla Dadhi (curds with extreme sour taste) will lead to the increase of impurities in the Rakta.

[12] As per Charaka, in Ca.Su. – 27/228, consumption of Dadhimanda (upper fluid portion of curds) is said to be responsible for the alleviation of Vata and Kapha. It indirectly says there will be vitiation of Pitta during the course of the illness.

[13] As per Dalhana, in his commentary on Su.Su. – 45/85,
सस्नेहं सजलमुदश्वित् ....।।, the unctuous portion mixed with water during the preparation of Takra from Dadhi is termed as Udashvit. In Udashvit, we are not going to remove the unctuous portion. Udashvit is having the similar qualities of Dadhi.

[14] धान्याम्लं काञ्जिकं शालिजूर्णाह्वकोद्रवादिकृतं मद्यम्।। As per Dalhana in Su.Su. – 45/216, Kanjika is the preparation prepared by rice, Jurnahva (Andropogon bicolor, a plant), Kodrava (Paspalum scrobiculatum, a species of grain, also termed as kodo millet) etc. This is a type of alcoholic beverage.

taste substances[15]

- Excess consumption of substances prepared from flour or the flour substances which are heated or consumption of these substances along with milk or unboiled milk[16]
- Consumption of *Rohinika* or *Kanakapota* along with milk[17]
- Consumption of *Kulattha, Pinyaka, Jambu, Pakva Lakucha phala* or *Shouktika* fried in *Sarshapa Taila* or *Kshara*[18]
- Consumption of milk along with *Ushnakara Dravya*[19]
- Excess *Atapa Sevana*[20] (exposure to sunlight, after the consumption of *Ushna, Tikshna, Vidahi* and *Viruddha Ahara* in particular)
- Person who is doing *Upavasa* (fasting) or *Vyayama* (exercise) or *Vyavaya* (intercourse[21])
- *Krodha*[22]
- *Shoka*
- *Bhaya*

## Samprapti of Raktapitta

क्षीरं पिवेत्युष्णाभितप्तः तस्यैवमाचरतः पित्वं प्रकोपमापद्यते, लोहितं च स्वप्रमाणमतिवर्तते।
तस्मिन् प्रमाणातिवृत्ते पित्तं प्रकुपितं शरीरमनुसर्पद्यदेव यकृत्प्लीह-प्रभवाणां लोहितवहानां च स्त्रोतसां लोहिताभिष्यन्दगुरूणि मुखान्यासाद्य प्रतिरुन्ध्या तदेव लोहितं दूषयति॥4॥ Ca.Ni. – 2/4

- Due to various *Pitta* vitiating factors, *Pitta* will be in *Prakopa* stage.
- Vitiated *Pitta Dosha* will move all over the body and reach *Mula* (origin) of *Raktavaha Srotas* i.e. *Yakrit* and *Pliha*. *Yakrit* and *Pliha* are *Srotomula* of *Raktavaha Srotas* as per *Charaka* and *Sushruta* added *Raktavahi Dhamani* too along with *Yakrit* and *Pliha*.
- This will lead to *Dushti* of *Rakta* by abnormally vitiated *Pitta* having *Abhishyandi* and Guru qualities.
- This will lead to the manifestation of *Raktapitta*.

नित्यमभ्यसतो दुष्टो रसः पित्तं प्रकोपयेत्।
विदग्धं स्वगुणैः पित्तं विदहत्याशु शोणितम्॥4॥
ततः प्रवर्तते रक्तमूर्ध्वं चाधो द्विधाऽपि वा।
आमाशयाद्रजेदूर्ध्वमधः पकाशयाद्रजेत्॥5॥
विदग्धयोर्द्वयोश्चापि द्विधाभागं प्रवर्तते।
केचित् सयकृतः प्लीहः प्रवदन्त्यसृजो गतिम्॥6॥ Su.Ut. – 45/4-6

- Due to the various *Pitta* vitiating factors, *Pitta* will aggressively increase in its own site i.e. *Amashaya*[23] and tend to afflict *Rakta* because of *Ashraya Ashrayi* relation as the vitiated *Pitta* moves to the *Shakha.*

---

[15] By nature, above said substances will have Amla Rasa, Laghu Guna and Amla Vipaka. When an individual consumes these substances, they are responsible for the vitiation of Pitta and in due course of time, vitiated Pitta will lead to the affliction of Rakta.

[16] As per Sushruta, in Su.Su. – 45/61, Ama Kshira (unboiled milk) has the qualities of Abhishyanda (causing obstruction to the channels) and Guru (heavy to digest). Both the qualities are responsible for Srotorodha.

[17] As per Charaka, in Ca.Su. – 25/84, the above said preparation if consumed in excess will lead to the conditions of Shonitabhishyanda and Dhamani Pratichaya. This will lead to the affliction of Rakta Dhatu and the person will have vitiation of Pitta, thereby the person may have bleeding tendency.

[18] The above said substances are having Ushna Virya. We know from earlier descriptions, the Ushna Virya substances will have affliction not only in Koshtha (alimentary canal), it also afflicts deeper tissues too. Excess consumption of Ushna Virya substances will increase the Tejo Mahabhuta in the body.

[19] The consumption of milk along with Ushnavirya Dravya such as orange or sweet lime etc will be considered to be Viruddha (incompatible) in nature. Milk is having Madhura taste with Shita Virya where as orange or sweet lime will have Amla taste with Ushnavirya. Both in terms of Rasa, Guna and Virya, above mentioned Dravya are considered to be Viruddha (incompatible). This will vitiate Rakta in due course of time.

[20] There are two mechanisms where the body can react to the hot environment – with or without acclimatisation. When a person is exposed to heat several hours each day while performing a reasonably heavy workload will develop increased tolerance to heat and humid conditions in 1 to 3 weeks. This is called heat acclimatisation. If an individual is exposed to hot environment for several hours at a time will have impact on the body without acclimatisation.

- When an individual has acclimatisation to heat, there will two fold increase in maximum rate of sweating, an increase in plasma volume and diminished loss of salt in sweat and urine due to aldosterone secretion from adrenal glands.
- When an individual is not acclimatised to heat, there will be
  - Vasodilatation of skin blood vessels in almost all areas of the body. These vessels are intensely dilated.
  - Profuse sweating across the skin
  - Reduced heat generation from the body

  When there is increase in plasma volume and more amount of sweating taking place, there will be the increase in viscosity of blood which results in rupture of capillaries where there will be appearance of bleeding in different parts of the body as already vaso dilatation of the capillaries during the course of the disease. The nature of bleeding may be petechiae, ecchymosis and haematoma.

[21] When an individual is doing Upavasa, there may be the vitiation of Pitta Dosha in the early phase of Upavasa. This can be evident after observing the increasing appetite at the time of performing Upavasa (fasting).
Excess exercise and excessive sexual intercourse will have increased metabolic changes observed in the body. This can lead to increased metabolic changes observed in the body. When metabolic changes happen in the body, that may lead to increased production of heat. But there is a possibility of decreased dissipation of heat from the body. This indicates the increase of Pitta in the body.

[22] The above said emotional changes may lead to the activation of sympathetic nervous system in the body. This activation may lead to the increased heart rate, increased basal metabolic rate, increased pulse rate etc in the body. When increased basal metabolic rate occurs in the body, that will lead to the generation of heat inside the body. This may be an indication of increase of Pitta in the body.

[23] Most of the diseases in Ayurveda are considered to be occurring due to the vitiation of Dosha where accumulation which is earliest stage

- Due to excess vitiation of *Pitta* and *Rakta Dhatu*, there will be bleeding through upper or lower routes or in both routes. If there is *Dushta Rakta* in *Amashaya*, the person will be presented with bleeding through upper routes and if the person is having *Dushta Rakta* in *Pakvashaya*, then there will be bleeding through lower routes. *Vidagdhavastha* of *Raktapitta* will be responsible for the bleeding through upper and lower routes.

**पित्तं विदग्धं स्वगुणैर्विदहत्याशु शोणितम्।**
**ततः प्रवर्तते रक्तमूर्ध्वं चाधो द्विधाऽपि वा॥2॥**
**ऊर्ध्वं नासाक्षिकर्णास्यैर्मेढ्रयोनिगुदैरधः।**
**कुपितं रोमकूपैश्च समस्तैस्तत्प्रवर्तते॥3॥**

Ma.Ni. – 9th ch, Raktapitta Nidana/2,3

- *Pitta* gets vitiated due to specific aetiological factors, which in turn leads to the vitiation of *Rakta Dhatu* in the body
- Abnormally vitiated *Rakta Dhatu*[24] will move in upward and downward direction.
- When there is upward movement of abnormally vitiated *Rakta*, bleeding occurs through nose, eyes, ears, oral cavity.
- When there is downward movement of abnormally vitiated *Rakta*, bleeding occurs through urethra, vagina and anus.
- When there is movement of abnormally vitiated *Rakta* in different directions, bleeding occurs through all above routes and roots of hairs.

## Samprapti Ghataka

- **Dosha :** *Pitta*
- **Dushya:** *Rakta*
- **Srotas :** *Raktavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagni, Raktadhatvagni*
- **Ama :** *Jatharagnijanya, Raktadhatvagnijanya*
- **Udbhava Sthana:** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana:** *Nasa, Akshi, Asya, Karna, Mutramarga, Yoni, Guda, Romakupa*
- **Rogamarga :** *Abhyantara, Bahya*
- **Vyadhi Svabhava:** *Ashukari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*

## Purvarupa of Raktapitta

The *Purvarupa* observed when the person could be suffering from *Raktapitta*[25] are as follow:

**तस्येमानि पूर्वरूपाणि भवन्ति तद्यथा - अनन्नाभिलाषः, भुक्तस्य विदाहः, शुक्ताम्लगन्धरस उद्गारः, छर्देरभीक्ष्णमागमनं छर्दितस्य बीभत्सता, स्वर- भेदो, गात्राणां सदनं, परिदाहः, मुखाद्धूमागम इव, लोहलोहितमत्स्यामगन्धित्वमिव चास्यस्य, रक्तहरितहारिद्रत्वमङ्गावयवशकृन्मूत्र स्वेदलाला सिङ्घाण- कास्यकर्ण मलपिडकोलिकापिडकानाम्, अङ्गवेदना, लोहितनीलपीतश्यावानामर्चिष्मतां च रूपाणां स्वप्ने दर्शनमभीक्ष्णमिति (लोहितपित्तपूर्वरूपाणि भवन्ति)॥6॥**

Ca.Ni. – 2/6

**सदनं शीतकामित्वं कण्टधूमायनं वमिः॥7॥**
**लोहगन्धिश्च निःश्वासो भवत्यस्मिन् भविष्यति।**

Su.Ut. – 45/7,8

- Aversion to take food
- If at all, a person takes food, then there will be burning sensation during the digestion of food, sour eructation due to *Shuktabhava* of ingested food.

---

**GK**

of Dosha vitiation occurs in the Koshtha (alimentary canal) in this particular occasion, it is Amashaya.

When an individual is suffering from the disease of alimentary canal, digestion, absorption and assimilation will be disturbed. Digestion of carbohydrate, fat and protein will be disturbed. When there is fat indigestion, the person will likely to have vitamin K deficiency. Vitamin K will be synthesised by colonic bacteria. Due to fat indigestion, the person will be having disturbances in the absorption of vitamin K too. Vitamin K is necessary for the formation of prothrombin, factor VII (proconvertin), factor IX and factor X, all of which are important for coagulation.

Thus, due to the imbalance in the digestion and metabolism, the person will suffer from bleeding disorders.

[24] Bleeding diatheses are a group of disorders characterised by defective haemostasis with abnormal bleeding. The tendency to bleeding may be spontaneous in the form of small haemorrhages in the skin and mucosa (e.g. purpura, ecchymoses) or there may be excessive external or internal bleeding following trivial trauma and surgical procedure (e.g. haematoma, haemarthrosis).

The bleeding can occur due to

1. Haemorrhagic diathesis due to vascular abnormalities
2. Haemorrhagic diathesis due to platelet abnormalities
3. Haemorrhagic diathesis due to disorders of coagulation factors
4. Combination of all these as in Disseminated Intravascular Coagulation (DIC)

[25] Probable explanation in western medicine is difficult to get to understand the pathophysiology of Raktapitta. As per fundamentals of Ayurveda, Raktapitta is a Pitta dominant disease involves Rakta in due course of time. This is considered as Shararika Vikara among Doshabala Pravritta Vikara of Adhyatmika Vikara.

As the disease is considered to be Sharirika (physical) in nature, its early manifestation starts from Koshtha (alimentary canal) and progresses to different parts of the body. Hence, most of the Lakshana produced during the progression of the disease, are usually related to Koshtha or Mahasrotas only. Depending upon the site of the bleeding, the prodromal symptoms are observed. Suppose for example, if the person is supposed to be suffering from Urdhvaga Raktapitta, he may show the prodromal symptoms pertaining to upper alimentary canal.

- Severe projectile vomiting associated with hoarseness of voice
- Sluggish movement of body parts
- Burning sensation all over the body
- Person will have sensation similar to the sensation as if smoke comes through mouth
- Person will have smell similar to metal, blood, fish or raw meat through the mouth
- Reddish, greenish, yellowish discolouration of the body parts, faecal matter, urine, sweat, salivary secretion, nasal mucosa, ears, secretion of eyes
- Severe pain all over the body in the areas of skin eruptions
- Patient will have dreams like fire is red, blue and dark.
- As per *Sushruta*,
- Sluggish movements all over the body
- Liking towards cold substances
- Burning sensation in the throat region
- Vomiting
- The breath of the individual will have smell of metal

### Types of Raktapitta

Based on *Dosha* dominance

**सान्द्रं पाण्डु सस्नेहं पिच्छिलं च कफान्वितम्।**
**श्यावारुणं सफेनं च तनु रूक्षं च वातिकम्॥11॥**
**रक्तपित्तं कषायाभं कृष्णं गोमूत्रसंनिभम्।**
**मेचकागारधूमाभमञ्जनाभं च पैत्तिकम्॥12॥**
**संसृष्टलिङ्गं संसर्गात्त्रिलिङ्गं सान्निपातिकम्।** Ca.Ci. – 4/11-13

### 7 types based on Dosha dominance

*Vataja, Pittaja, Kaphaja, Sannipataja, Dvandvaja* – 3 types

- **Vataja Raktapitta:** blackish discolouration of *Rakta*, foams will come along with blood discharge, thin blood and dryness of the blood can be seen
- *Pittaja Raktapitta*:
- *Kaphaja Raktapitta*
- Mixed features are seen in *Raktapitta* having mixed *Dosha* vitiation
- *Sannipataja Lakshana* are seen in the patients having *Sannipata Dosha* vitiation

## Upadrava of Raktapitta

**उपद्रवास्तु खलु दौर्बल्यारोचकाविपाकश्यासकासज्वरातीसारशोफशोषपाण्डुरोगाः खरभेदश्च॥7॥** Ca.Ni. – 2/7

**दौर्बल्यश्वासकासज्वरवमथुमदाः पाण्डुतादाहमूर्च्छा भुक्ते चान्ने विदाहस्त्वधृतिरपि सदा हृद्यतुल्या च पीड़ा।**
**तृष्णा कण्ठस्य भेदः शिरसि च दवनं पूतिनिष्ठीवनं च द्वेषो भक्तेऽविपाको विरतिरपि रते रक्तपित्तोपसर्गाः॥9॥** Su.Ut. 45/9

- Weakness[26]
- Tastelessness
- Indigestion[27]
- Breathing discomfort[18]
- Cough[28]

---

[26] This can be observed as a consequence of either non progressive or progressive haemorrhagic shock.
Non progressive haemorrhagic shock (compensated shock) is a reversible type of haemorrhagic shock. The following factors are responsible for the reversibility of shock.

1. Baroreceptors reflexes which elicit powerful sympathetic stimulation of the circulation
2. Central nervous system ischemic response, elicits even more powerful sympathetic stimulation throughout the body, but is not activated significantly until the arterial pressure falls below 50 mmHg.
3. Reverse stress relaxation of the circulator system, which causes the blood vessels to contract around the diminished blood volume, so that the blood volume that is available for more adequately fills the circulation.
4. Formation of angiotensin by kidneys which constricts peripheral arteries and causes decreased output of water and salt by the kidneys
5. Formation of vasopressin (ADH) by neurohypophysis which constricts peripheral arteries and veins and greatly water retention by the kidneys.
6. Compensatory mechanisms that return the blood volume back to normal, including absorption of large quantities of fluid into the blood capillaries from interstitial compartment, conservation of salt and water by the kidneys and increased thirst and increased appetite for salt.

Sympathetic reflexes maximally activated within 30 seconds to minute after haemorrhage.
Progressive shock: This type of haemorrhagic shock will have

1. Cardiac depression leading reduced cardiac output
2. Vasomotor failure i.e. depression of brain usually occurs if the arterial pressure falls below 30 mmHg
3. Blockage of very small vessels (microvessels or capillaries) leading to slowness of circulation
4. Increased capillary permeability occurs as a sequel of blockage of capillaries.
5. Release of toxins from ischemic tissue such as histamine, serotonin etc.

[27] Tastelessness and indigestion can occur due to severe form of hypovolemic shock. In this situation, there will be shift of blood supply from alimentary canal to the heart and brain. Due to the poor blood supply to the alimentary canal, the individual may also suffer from thirst and aversion to take food.

[28] This can be attributable to the bleeding occurring in the respiratory system. Here, the person may have cough with haemoptysis and expiratory breathlessness. If the bleeding occurring in the upper respiratory system or around the gums and if it enters the larynx and other

- Raised body temperature[29]
- Diarrhoea [30]
- Swelling[31]
- Emaciation of the body[32]
- *Pandu* (anemia)[33]
- **Hoarseness of voice**
- **Vomiting**
- Burning sensation[34]
- Altered state of consciousness[35]
- Discomfort in the chest[36]
- Thirst[37]
- Headache[38]
- **Sputum mixed with pus or *Puya***
- **Aversion to take food**
- **Restlessness**

## Sadhyasadhyata of Raktapitta

**ऊर्ध्वं साध्यमधोयाप्यमसाध्यं युगपद्गतम्।** Su.Ut. 45/7

- *Urdhvaga Raktapitta* is *Sadhya* (easily curable)
- *Adhoga Raktapitta* is *Yapya* (manageable)
- *Ubhayagata Raktapitta* is *Asadhya* (incurable)

## Asadhya Lakshana of Raktapitta

**मांसप्रक्षालनाभं कथितमिव च यत् कर्दमाम्भोनिभं वा मेदः पूयास्रकल्पं**
**यकृदिव यदि वा पक्वजम्बूफलाभम्।**
**यत् कृष्णं यच्च नीलं भृशमतिकुणपं यत्र चोक्ता विकारास्तद्वय रक्तपित्तं**
**सुरपतिधनुषा यच्च तुल्यं विभाति॥10॥**

Su.Ut. – 45/10

- Blood resembles the colour of water after meat wash[39]
- Blood resembles the colour of rotten food[40]
- Blood resembles the colour of *Kardama* (mud)[41]
- Blood mixed with *Meda* (fat tissue), *Puya* (pus) or resembling the colour of *Pakva Jambhu Phala* (dark purple colour)
- Dark blood or bluish coloured blood[42] or smell of dead body comes in the patient of *Raktapitta*[43]

---

GK

structures distal to larynx, he may have hoarseness of voice.

[29] This complication can be attributable to thrombocytopenia. When an individual is suffering from chronic haemorrhage, the person will have activation of production of pluripotent haemopoietic stem cells. Depending upon the requirement of the body, the person may have increased production of RBC, WBC and platelets. Everyday, human body is exposed to millions of microorganisms. Due to the antigen antibody reaction, the person may have raised body temperature.

[30] When an individual is presented with diarrhoea, that will lead to disturbed absorption of nutrients, macro as well as micronutrients. In the individuals having bleeding diatheses, and if he is suffering from diarrhoea, that will lead to the decreased absorption of vitamin K which is one of the essential ingredient required for the formation of coagulation factors.

[31] This can be attributable to swelling due to accumulation of blood in a particular part of the body such as haemarthosis or haematoma etc.

[32] This occurs as a result of hypoxia which results as a result of anemia which is a sequel of haemorrhage. Due to haemorrhage, there will be hypovolemia which is leading to anemia. Low haemoglobin is the after effect of the anemia and the final result is poor blood flow to the periphery. Due to this, there will be loss of adipose tissue from the subcutaneous tissue and other areas of the body which will lead to emaciation of the body.

[33] This occurs as a consequence of uncontrolled bleeding in the diseased individual. After rapid haemorrhage, the body replaces the fluid portion of the plasma in 1 to 3 days. If a secondary haemorrhage does not occur, the red blood cell concentration returns to normal within 3 to 6 weeks.

In case of chronic blood loss, a person frequently cannot absorb enough iron from the intestine to form haemoglobin as rapidly as it is lost.

[34] This may be observed in the patients of chronic and active gastric ulcer wherein there will be thinning of the gastric mucosa and the person may have burning sensation due to slight secretion of hydrochloric acid from the oxyntic cells of the stomach.

[35] This is attributable to the progression of the hypovolemic shock which results in syncopal attack or it may occur as a result of haemorrhage inside the brain.

[36] This is attributable to the progression of the hypovolemic shock which results in syncopal attack or it may occur as a result of haemorrhage inside the brain.

[37] This may be observed in a state of dehydration which occurs as a result of acute blood loss.

[38] The presence of headache can be attributable to haemorrhage occurring inside the head. This is usually progressive in nature and is associated with projectile vomiting due to the increased intracranial pressure.

[39] It refers to dark black or brown colour. This is specifically seen in haemorrhage in the upper alimentary canal. It happens due to the formation of acid haematin as the blood mixes with the hydrochloric acid secreted in the stomach. This leads to the transformation of blood into dark brown coloured acid haematin. This colour resembles the colour of water after meat wash.

[40] In this, the term rotten food indicates the blood having the colour of rotten food, i.e. the ingested food will have fading or darkening colour. While analysng the blood during bleeding, the blood from the venous part of cardiovascular system will have darker discolouration. In other words, the bleeding from the venous part of cardiovascular system may be considered in case of abnormal discolouration.

[41] This represents the necrosis of the affected part where bleeding is occurring.

[42] Among the cardiovascular system, out of 100%, 64% of the blood remains in veins. In other words, if one observes dark coloured blood, it probably indicates the bleeding from the veins. More amount of blood loss can occur if proper measures are not taken to check the blood loss.

[43] This is attributable to the release of hydrogen sulphide gas from the wound or area of bleed.

## Key summary of the chapter

- Raktapitta is a spectrum of diseases where there is Pitta Dosha dominance is observed throughout the progression of the disease. In this disease, there is possibility of bleeding through natural orifices or through skin. Depending upon the site of bleeding, association of Dosha vitiation along with Pitta Dosha may vary. For example, if the person is presenting with bleeding through nose, there is a possibility of association of Kapha Dosha along with Pitta and in case of Vata Dosha association, the individual may have bleeding tendency through anus or urethra or vagina. Ca.Ci. – 4/9
- Abnormal vitiation of Pitta due to various Pitta vitiating reasons will combine together with abnormal Rakta in the body leading to the manifestation of Raktapitta.
- Raktapitta is a Amashayasamuttha Vikara with the involvement of Raktavaha Srotas with Yakrit and Pliha as the probable Srotomula afflicted during the genesis and progression of the disease with Sanga and Vimargagamana as the type of Srotodushti afflicted.
- As far as the types of Raktapitta, two different types of Raktapitta are mentioned based on the appearance of blood in different routes of the body and based on the dominance of Dosha in the body, Urdhvaga, Adhoga and Ubhayaga Raktapitta are the 3 types based on the appearance of bleeding in the human body. Based on the type of Dosha dominance, 7 types of Raktapitta are mentioned: Vataja, Pittaja, Kaphaja, Vatapittaja, Pittakaphaja, Vatakaphaja and Sannipataja Raktapitta.
- Most of the Nidana (etiological factors) responsible for the manifestation of Raktapitta are considered to be having Ushna and Tikshna Guna or Tejo Mahabhuta dominance.

## Self-Assessment: Questions for Reviews

### Long essay questions

- Define Raktapitta. Explain Nidana, Purvarupa, Bheda, Lakshana, Asadhya Lakshana and Sadhyasadhyata of Raktapitta

### Short essay questions

- Describe Urdhvaga Raktapitta
- Explain Adhoga Raktapitta
- Explain the types of Raktapitta
- Describe Sadhyasadhyata of Raktapitta

### MCQs

**1. Dosha dominance observed in the patient of Raktapitta in general is**

a. Vata; b. Pitta;
c. Kapha; d. All of the above

*Answer:* (b)

**2. Udbhava Sthana of Raktapitta is**

a. Amashayasamuttha;
b. Pakvashayasamuttha;
c. Both Amashayasamuttha and Pakvashayasamuttha;
d. Neither Amashayasamuttha nor Pakvashayasamuttha

*Answer:* (a)

**3. The type of Srotodushti observed in the lady who is having excessive menstruation is**

a. Atipravritti;
b. Sanga and Vimargagamana;
c. Vimargagamana;
d. Apravritti

*Answer:* (a)

**4. The type of Srotodushti observed in the patient who is suffering from nasal bleeding is**

a. Atipravritti;
b. Sanga and Vimargagamana;
c. Vimargagamana;
d. Apravritti

*Answer:* (b)

**5. Anubandha Dosha observed in the patient suffering from Urdhvaga Raktapitta is**

a. Vata;
b. Kapha;
c. Vata and Kapha;
d. None of the above

*Answer:* (b)

**6. Anubandhya Dosha in the Raktapitta diseased individual observed will be**

a. Vata;
b. Kapha;
c. Vata and Kapha;
d. Pitta

*Answer:* (d)

**7. Which of the following disease pattern is having Atipravritti pattern in the context of Raktapitta?**

a. Prameha;
b. Atisara;
c. Raktapradara;

d. Bleeding through nose

*Answer*: (c)

**8. If we consider the blood of cardiovascular system as 100%, the percentage of blood present in the veins of the human body is**

a. 30%; b. 50%;
c. 64%; d. 80%

*Answer*: (c)

**9. Primary Srotas afflicted in the patient of Raktapitta is**

a. Rasavaha Srotas;
b. Raktavaha Srotas;
c. Majjavaha Srotas;
d. Purishavaha Srotas

*Answer*: (b)

**10. Sankhya Samprapti of Raktapitta based on the Dosha dominance is**

a. 4 types; b. 2 types;
c. 7 types; d. 12 types

*Answer*: (c)

**11. Loha Gandhi Shvasa (metallic odour) during inspiration is the Purvarupa observed in**

a. Pandu; b. Kamala;
c. Raktapitta; d. Amlapitta

*Answer*: (c)

**12. Which coagulation factor is involved in haemophilia?**

a. Factor IV; b. Factor VIII;
c. Factor IX; d. Factor X

*Answer*: (b)

**13. In the pathogenesis of Raktapitta, which of the following character of Pitta Dosha will be abnormally increased?**

a. Ushna; b. Drava;
c. Sara; d. Snigdha

*Answer*: (b)

**14. Which of the following diseases are considered as Yapya except**

a. Tamaka Shvasa;
b. Pittaja Prameha;
c. Urdhvaga Raktapitta;
d. Adhoga Raktapitta

*Answer*: (c)

**15. Urdhvaga Raktapitta is**

a. Yapya; b. Anupakrama;
c. Sadhya; d. Asadhya

*Answer*: (c)

### Chapter resources

- https://www.coagadex.com/rare-bleeding-disorders
- Charaka Samhita Nidana Sthana 2nd chapter Raktapitta Nidana Adhyaya
- Charaka Samhita Chikitsa Sthana 4th chapter Raktapitta Chikitsa Adhyaya
- Sushruta Samhita Uttara Tantra 45th chapter - Raktapitta Pratishedha Adhyaya
- Madhava Nidana 9th chapter – Raktapitta Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

## CHAPTER

## 22

# Haemopoietic Disorders

### Learning Objectives

- To know about brief introduction about haemopoietic diseases
- To know about the clinical features of anaemia, nutritional anaemia, thalassemia, sickle cell anaemia, leukemia, thrombocytopenia
- To know about the necessary physical examinations to be performed in above said diseases
- To know about the necessary investigations to be ordered in the above said diseases and methods of interpretation

Anemia **(see Figure 60)** is a disease of multiple causations and its scientific management requires an exact classification which can be done only after a complete study of blood. There is a tendency among the health care professionals to analyse Hb analysis for the evaluation of anemia and they prescribe iron supplementation. Hb estimation merely detects the presence and severity of anemia. However, further tests like haemogram (CBC), peripheral smear study and biochemical investigations are required to classify anemia and appropriate management. In any case of anemia, therefore, it is not wise to begin treatment without CBC and peripheral smear study.

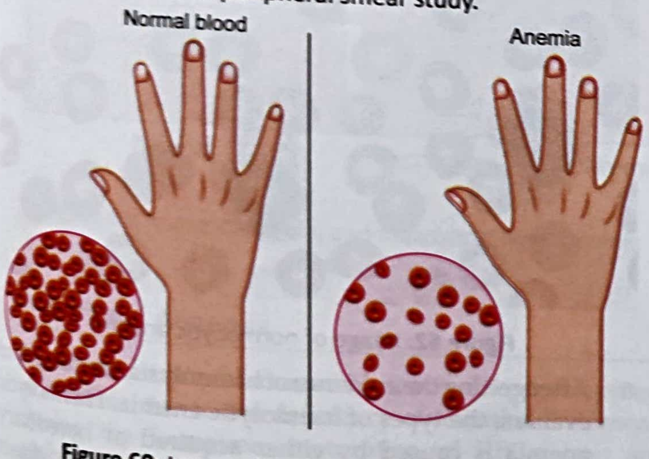


**Figure 60:** Image of normal and anemic patient

Among the different parameters observed in complete blood count (CBC), following parameters are of much clinical significance as far as the diagnosis of anemia is concerned.

- **Haemoglobin** – general indicator of anemia and polycythemia
- **MCV (Mean Corpuscular Volume)** – key parameter for classification of anemia
- **MCHC (Mean Corpuscular Haemoglobin Concentration)** – helps in the classification of anemia
- **RDW (Red cell Distribution Width)** – helps in differential diagnosis of anemia
- **RBC count** – may be either normal or decreased in anemia.

First step in the evaluation of anemia is careful observation of haemogram report along with peripheral study. Here the clinician must focus on MCV which helps in the morphological classification of anemia that is microcytic, normocytic and macrocytic anemia.

## Microcytic anemia

If MCV is decreased and peripheral smear study also shows microcytic picture of red blood cells clinician may think in the direction of microcytic anemia. The three major diagnostic possibilities for microcytic anemia are iron deficiency anemia, thalassemia and anemia of chronic disease **(see Figure 61).**

### Iron deficiency anemia (IDA)

Iron deficiency is the most common cause of microcytic anemia, that is the reason, when you get the microcytic picture of anemia, we have make the diagnosis of iron deficiency as the cause of anemia. Increased RDW (red cell distribution width) and thrombocytosis are diagnostic clues for iron deficiency anemia (IDA) in haemogram. Anisocytosis, poikilocytosis (variations in the shape of

RBCs), elliptocytosis are observed in peripheral blood smear. If haemogram and peripheral blood smear are directing towards IDA, then confirm IDA by asking the biochemical test. The important biochemical test to be done is serum ferritin level. Low level of serum ferritin is diagnostic of IDA. Other iron panel tests which include serum iron, transferrin-iron saturation % are decreased and TIBC (total iron binding capacity) and serum transferrin levels are increased. Bone marrow biopsy is not necessary for the diagnosis of IDA.

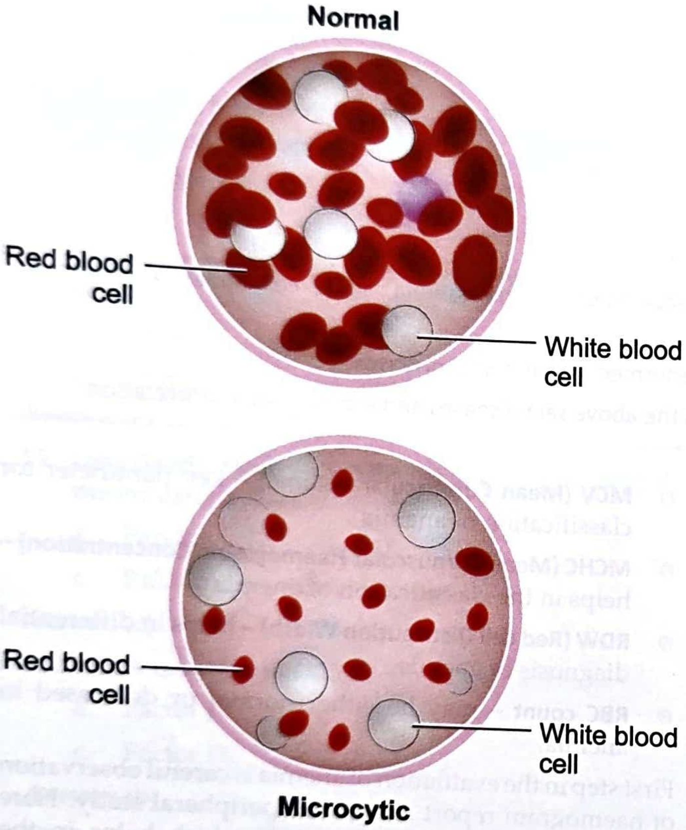


**Figure 61:** Image of normal and micrcytic blood

### Thalassemia

This is explained separately in this chapter elsewhere.

### Anemia of chronic disease (ACD)

Rheumatoid arthritis, tuberculosis, temporal arteritis, chronic inflammation and infection are the usual cause of ACD. Renal cell carcinoma, Hodgkin lymphoma, castleman disease, myelofibrosis are the unusual causes of ACD. In this type of microcytic anemia, variations may be observed in total count, differential count, platelet count. Abnormal cells, blast cells may be reported in peripheral blood smear (PBS) in case of blood malignancy. In ACD, serum iron, TIBC, transferrin-iron saturation % and transferrin are decreased.

### Normocytic anemia

In this type of anemia **(see Figure 62)**, MCV is normal and peripheral blood smear (PBS) shows normal sized RBCs. While evaluating normocytic anemia, clinicians may think of bleeding, nutritional anemia, anemia associated with renal insufficiency and haemolytic anemia.

- If bleeding is implicated as the cause of anemia, then stool occult blood test, urine test can be done if indicated.
- In case of nutritional anemia, iron and vitamin B12 or folic acid deficiencies can be ordered despite their usual association with microcytic and macrocytic anemia respectively. In these cases, RDW is usually increased and PBS report shows anisocytosis and dimorphic picture of RBC.
- Anemia of renal insufficiency can be identified by checking serum creatinine level.
- Another possibility to consider in normocytic anemia is haemolytic anemia. Thrombocytosis is usually observed and RDW is usually normal or elevated. Polychromasia, spherocytes, schistocytes may be reported in smear examination. Evaluation of haemolytic anemia begins by asking tests which give evidence of haemolysis. Tests in this line are LDH (lactate dehydrogenase), unconjugated bilirubin, serum haptoglobin. LDH and unconjugated bilirubin are elevated and haptoglobin is decreased in case of haemolysis. In urine, urobilinogen is raised, but there is not bilirubinuria. Clinicians can also get the evidence of intravascular haemolysis in the form of haemoglobinuria.

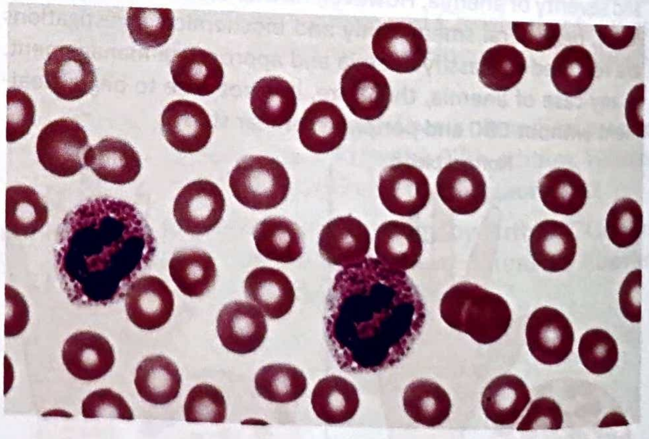
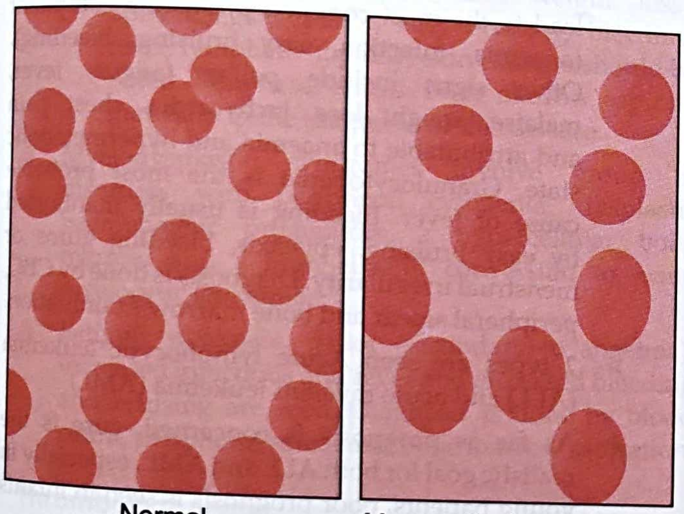


**Figure 62:** Image of normocytic anemia

- After getting the evidence of haemolysis, next step is to evaluate the types of haemolytic anemia. Haemolytic anemia is caused by either acquired or hereditary cause. Immunohaemolytic, microangiopathic, direct toxic effects by parasites (e.g. malaria), bacteria (e.g. septicemia by clostridium, staphylococci), snake and spider bites, metals (e.g. lead, copper), extensive burns, PNH (paroxysmal nocturnal haemoglobinuria), splenomegaly are the acquired causes. Hereditary spherocytosis, G6PD (glucose 6 phosphate dehydrogenase) deficiency, PK (pyruvate kinase) deficiency, sickle cell syndrome, thalassemia are the hereditary causes of haemolytic anemia.

## Macrocytic anemia

**(see Figure 63)** In this type, MCV is increased. Alcohol consumption, use of certain drugs like zidovudine, hydroxyurea is associated with macrocytosis. During evaluation of macrocytic anemia, we have to consider above said possibilities i.e. alcohol consumption and drug intake. The next step is to rule out nutritional causes (vitamin B12 and folic acid deficiencies). In this step, serum homocysteine and serum methylmalonic acid level should be ordered to distinguish vitamin B12 from folate deficiency. In vitamin B12 deficiency, both are elevated where as in folic acid deficiency, there is only elevation of homocysteine and not of methylmalonic acid. Later on vitamin B12 deficiency and folate deficiencies are confirmed by the evaluation of vitamin B12 assay and folate assay respectively. In patients with vitamin B12 deficiency, the next step is to screen for the presence of intrinsic factor antibodies. If intrinsic factor antibodies are present, then working diagnosis of pernicious anemia (PA) can be made.



Normal

Macrocytic hyperchromic anemia

**Figure 63:** Image of normal and macrocytic hypochromic anemia

## Nutritional Anaemia

The term nutritional anaemia refers to the development of anaemia due to the deficiency of nutritional elements during the formation, maturation of RBCs. Iron and globin, a type of protein are necessary for the formation of haemoglobin. Intrinsic factor, vitamin B12 and folic acid are essential for the maturation of RBCs. Iron deficiency and protein energy malnutrition are responsible for the deficient haemoglobin, whereas the deficiency of intrinsic factor, vitamin B12 and folic acid are responsible for the manifestation of megaloblastic anaemia. Alimentary canal dysfunction which may be associated with digestion, assimilation of above said factors may lead to the manifestation of nutritional anaemia. The clinical features are similar to the description mentioned in the context of anaemia.

## Thalassemia

If the ferritin level either normal or elevated, clinicians may think of other two possibities. In thalassemia, RBC count and RDW are either normal or elevated. Polychromasia, target cells, schistocytes, basophilic stipplings may be reported in peripheral blood smear. Here Hb electrophoresis should be done. In thalassemia, we can observe increase in serum iron, transferrin-iron saturation % and decrease in TIBC and serum transferrin. We have to take the advise of haematologist for the accurate diagnosis in this situation.

## Sickle Cell Anaemia

Sickle cell anaemia **(see Figure 64)** is a type of anaemia observed as a result of chronic haemolysis which occurs due to the shape of RBC as a sickle. Sickle shaped RBCs clog capillaries, causing organ ischemia. Acute exacerbations (crises) may develop frequently. Infection, bone marrow aplasia or lung involvement (acute chest syndrome) can develop acutely and be fatal. Normocytic haemolytic anaemia is characteristic. Diagnosis requires Hb electrophoresis.

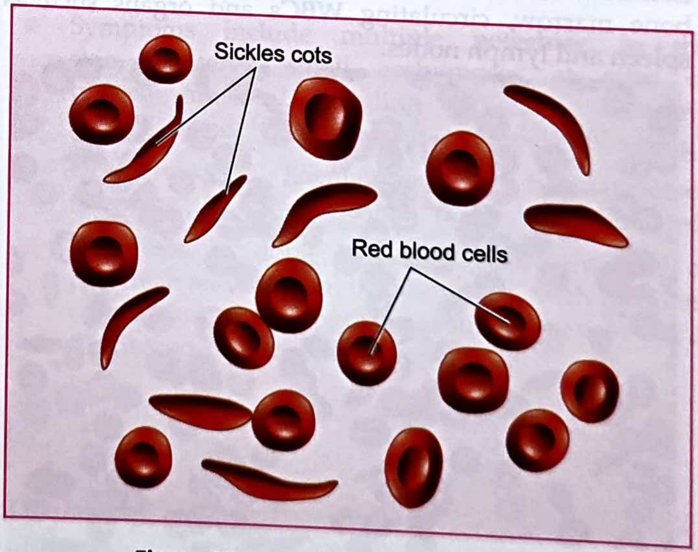


**Figure 64:** Image of sickle cell anemia

- Due to the shape of RBCs, sickle is the name given to the disease as sickle cell anaemia . In this type of anaemia, there will be distorted, inflexible RBCs adhere to the vascular endothelium and plug small arterioles and capillaries, which leads to infarction. Venous plugging predisposes to thrombosis. Chronic compensatory marrow hyperactivity may lead to deformity of bones.
- Most symptoms occur only in patients who are

homozygous and result from anaemia and vaso occlusive events resulting in tissue ischemia and infarction. Anaemia is usually severe but varies highly among patients, mild jaundice and pallor may be accompanied.

- Patients may be poorly developed and often have a relatively short trunk, with long extremities and a tower shaped skull. Hepatosplenomegaly is common in children, cardiomegaly and systolic murmurs are common.
- Painful crisis causes severe pain in long bones (e.g. pretibial pain), hands and feet and joints. Joint pain may result from haemarthrosis or avascular necrosis of head of femur. Severe abdominal pain may develop with or without vomiting.
- Complications associated with sickle cell anaemia are impaired growth and development. Increased susceptibility to infection, particularly pneumococcal and salmonella infections. Other consequences include ischemic stroke, CNS vasculitis, avascular necrosis of hips, renal concentrating defects, renal failure, heart failure and pulmonary fibrosis.
- Diagnosis is usually done by performing peripheral smear test and Hb electrophoresis.

## Leukemia

Leukemias **(see Figure 65)** are caoncers of WBCs involving bone marrow, circulating WBCs and organs such as spleen and lymph nodes.

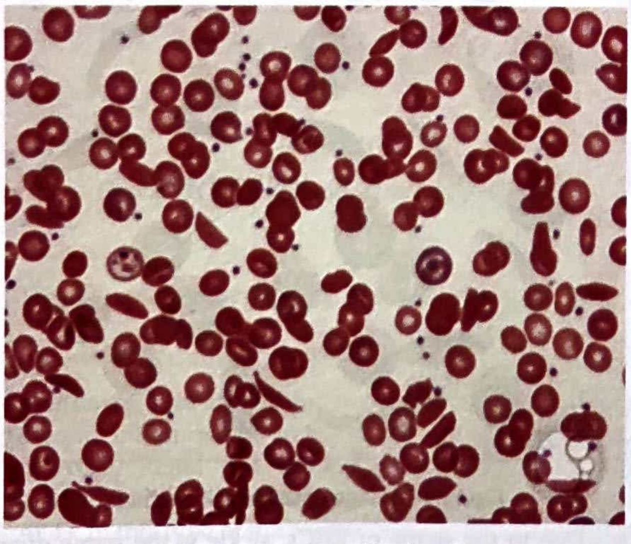


**Figure 65:** Image of leukemia

- The people who are having exposure to ionizing radiation (e.g. post atom bomb in Nagasaki and Hiroshima) or to chemicals such as benzene; chromosomal translocations, preexisting conditions such as immune deficiency disorders, chromosomal disorders, Down syndrome.
- Malignant transformation usually occurs at pluripotent stem cell level. Manifestations of leukemias are due to suppression of normal blood cell formation and organ infiltration by leukemic cells. Anaemia, thrombocytopenia and granulocytopenia may be associated with this disease. Enlargement of liver, spleen lymph nodes may also be present.
- Leukemias are classified based on life expectancy as acute or chronic, but now even classification are done according to cellular maturity.
  - Acute leukemias
  - Chronic leukemias
  - Myelodysplastic syndromes
- Acute leukemia occurs when a haematopoietic stem cell undergoes malignant transformation into a primitive, undifferentiated cell with abnormal longevity. These lymphocytes (ALL – acute lymphocytic leukemia) or myeloid cells (acute myeloid leukemia) proliferate abnormally, inducing anaemia, thrombocytopenia and granulocytopenia. As the disease is blood borne, this disease can infiltrate various organs and sites including liver, spleen, lymph nodes, CNS, kidneys and gonads.
  - Symptoms usually present only a few days to weeks before diagnosis. Disrupted RBCs may lead to the most common presenting compliant (anaemia, infection, easy bruising, bleeding). Other signs include pallor, fatigue, fever, malaise, weight loss, tachycardia, chest pain and attributable to anaemia and hypermetabolic state. Granulocytopenia is the most probable cause of fever. Bleeding is usually manifested by easy bruising, epistaxis, bleeding gums or menstrual irregularity. Diagnosis is done by CBC, peripheral smear and bone marrow examination.
  - 2 types are seen Acute lymphocytic leukemia (ALL) and acute myeloid leukemia (AML)
  - As far as prognosis is concerned, cure is the realistic goal for both ALL and AML, especially in young patients, poor prognosis is seen in infants and elderly individuals.
- Chronic leukemia usually manifests as abnormal leukocytosis with or without cytopenia in an otherwise asymptomatic person. Two types of the diseases are seen chronic lymphocytic leukemia (CLL) and chronic myelocytic leukemia (CML).
  - CLL is most common type of leukemia where mature appearing defective neoplastic lymphocytes with an abnormally long life span. The peripheral blood, bone marrow, spleen and lymph nodes undergo leukemic infiltration. Symptoms may be absent or may include lymphadenopathy, splenomegaly, hepatomegaly and non specific symptoms attributable to anaemia. Diagnosis is done by peripheral smear examination and bone marrow aspirate.

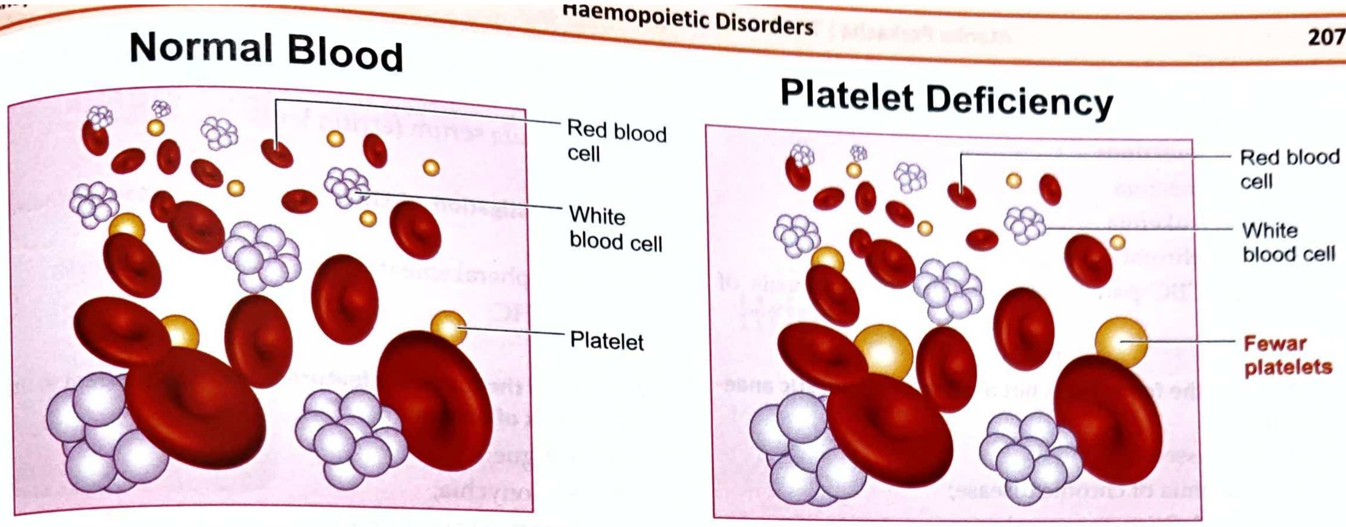


**Figure 66:** Image of normal blood and blood of thrombocytopenia

- ➤ CML occurs when a pluripotent stem cell undergoes malignant transformation and clonal myeloproliferation, leading to a striking overproduction of immature granulocytes. Initially asymptomatic, CML progression is insidious associated with a nonspecific stage (malaise, anorexia and weight loss). Splenomegaly, pallor, easy bruising, bleeding, fever, lymphadenopathy, skin changes should be noted. Peripheral smear, bone marrow aspirate may help in the diagnosis of this disease.
- Myelodysplastic syndromes involve group of disorders with peripheral cytopenia, dysplastic haemopoietic progenitors, a hypercellular bone marrow and a high risk of conversion to acute myelocytic leukemia.
- Fatigue, weakness, pallor (secondary to anaemia), increased infections and fever and increased bleeding and bruising are seen. Diagnosis is done by blood count, peripheral smear and bone marrow aspiration.

## Thrombocytopenia

The term thrombocytopenia **(see Figure 66)** refers the decreased number of thrombocytes (platelets) in the blood. Normal count of thrombocytes is 140,000 to 440,000/ µl. These are cell fragments that function in clotting system.

Platelets circulate in the blood for 7 to 10 days. These are destroyed by spleen. When the platelet count <50,000/µl may lead to bleeding tendencies.

- Failed platelet production, increased splenic sequestration of platelets, destruction or consumption, dilution of platelets and combination of above mechanisms will be responsible for thrombocytopenia.
- Symptoms include multiple petechiae in the skin, scattered small ecchymoses at sites of trauma; mucosal bleeding (epistaxis, bleeding in GI and GU tracts, vaginal bleeding).
- Deep visceral haematomas or haemarthroses (bleeding in the joints) may be associated.
- Diagnosis is done by clinical presentation of petechiae and mucosal bleeding, CBC with platelets, coagulation studies, peripheral smear test may aid in the diagnosis of thrombocytopenia.

### Key summary of the chapter

- Haemopoietic disorders comprise of spectrum of the diseases where in formed elements of the blood from pluripotent haemopoietic stem cell to mature blood cells' dysfunctions are observed. In this chapter, brief description of anaemia, nutritional anaemia, thalassemia, sickle cell disease, leukemia and thrombocytopenia are being discussed with images.
- In total, the patient may present with breathlessness which can be observed at any point of time irrespective of the position of the body unlike congestive cardiac failure etc; weakness, fever, palpitation, easy bruising and bleeding, fatigue, scanty menstruation in females of reproductive age group are observed. The person may have pallor, hepatosplenomegaly, haemic murmur (systolic murmur in pulmonary area) etc are seen.
- When one makes the diagnosis of anaemia, CBC (Complete blood count) and peripheral smear study has to be done to predict the cause, prognosis of anaemia.

* * *

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain anaemia
- Explain leukemia
- Describe thrombocytopenia
- Explain CBC parameters used in the diagnosis of anaemia

### MCQs

1. **Which of the following is not a cause of microcytic anaemia?**
   a. Thalassemia;
   b. Anaemia of chronic disease;
   c. Iron deficiency anaemia;
   d. Pancytopenia

*Answer*: (d)

2. **Pica, a clinical presentation for iron deficiency anaemia is**
   a. Itchiness;
   b. Erectile dysfunction;
   c. Desire to eat weird things;
   d. A small woodland creature

*Answer*: (c)

3. **Haemic murmur seen in the patients of anaemia seen in which part of the chest?**
   a. Aortic area;
   b. Pulmonary area;
   c. Tricuspid area;
   d. Mitral area

*Answer*: (b)

4. **The term koilonychia refers to which part of the body?**
   a. Eye;
   b. Oral mucosa;
   c. Skin;
   d. Nail

*Answer*: (d)

5. **Which of the following laboratory parameter is used to classify anaemia into microcytic, normocytic or macrocytic?**
   a. Mean corpuscular volume (MCV);
   b. Mean corpuscular haemoglobin (MCH);
   c. Mean corpuscular haemoglobin concentration (MCHC);
   d. Red cell Distribution Width (RDW)

*Answer*: (a)

6. **Identify the pathological condition associated with macrocytic anaemia**
   a. Sideroblastic anaemia;
   b. Folic acid deficiency;
   c. Autoimmune haemolytic anaemia;
   d. Myelofibrosis

*Answer*: (b)

7. **Pernicious anaemia is an autoimmune disorder that causes**
   a. Haemolysis;
   b. Folate excess;
   c. Vitamin B12 deficiency;
   d. Elevate serum ferritin level

*Answer*: (c)

8. **The investigation of choice for the diagnosis of thalassemia is**
   a. Peripheral smear;
   b. Hb electrophoresis;
   c. MCHC;
   d. RDW

*Answer*: (b)

9. **Which of the following feature is invariably absent in the diagnosis of anaemia?**
   a. Fatigue;
   b. Koilonychia;
   c. Scanty or absent menstruation in females;
   d. Icterus

*Answer*: (d)

10. **The commonest cause of jaundice in the patient of thalassemia is**
   a. Viral hepatitis C;
   b. Iron deposition in liver;
   c. Viral hepatitis B;
   d. Haemolysis

*Answer*: (d)

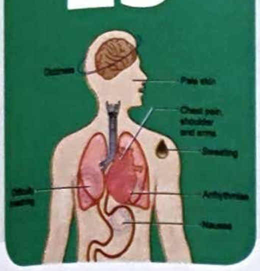
### Chapter resources

- https://www.alamy.com/stock-image-the-effect-of-anemia-on-skin-blood-flow-in-human-164516755.html?imageid=9F2C169F-72FD-4B4B-947E-AC44BA5C2A58&p=298858&pn=1&searchId=f06f476c892e4f52ba284aac2f34cc5b&searchtype=0
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Textbook on Clinical biochemistry and haematology with clinical concepts by Naveen Chandra N H, 1st edition, published by the author, 2013.
- www.boldsky.com for microcytic anaemia
- www.researchgate.net for normocytic anaemia
- www.labmedica.com for macrocytic anaemia
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.mayoclinic.org for sickle cell anaemia
- www.imagebank.hematology.org for peripheral smear of sickle cell anaemia
- www.newsmedical.com for thrombocytopenia
- www.wjoanemia.com

***

CHAPTER

23



# Hridroga

## Learning Objectives

- To learn the concept of Hridroga
- To learn the Nidana Panchaka of Hridroga in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To enlist the types of Hridroga
- To know the Lakshana of each type of Hridroga
- To know about Vishishta Lakshana of Hridroga
- To understand the different Upadrava (complications) of Hridroga
- To learn the prognosis of the Hridroga

## Introduction

हृदो रोगो हृद्रोगः। Madhu, Ma.Ni. – 29/2
कुर्वन्ति हृदये वाधां हृद्रोगं तं प्रचक्षते॥ Su.Ut. – 43/4
हृदये बाधां कुर्वन्ति, तं हृद्रोगं प्रचक्षते Dalhana, Su.Ut. – 43/4

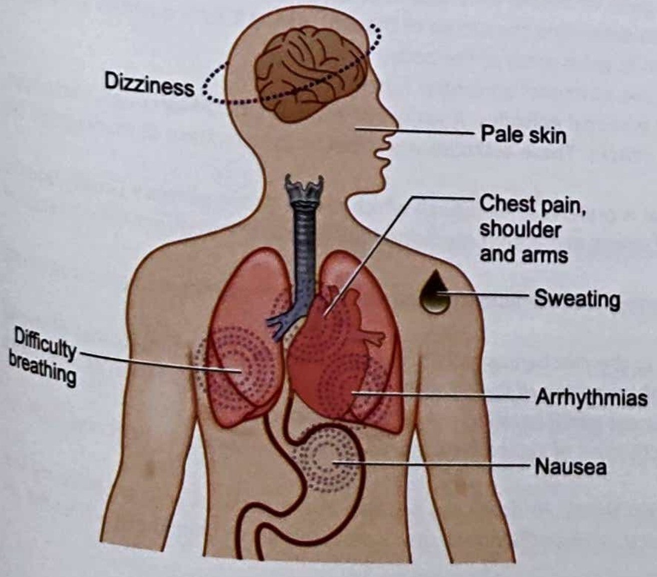


**Figure 67:** Pratyatma Lakshana of Hridroga

As per the various definitions of *Hridroga* **(see Figure 67)**, we can learn that any deviation in the function of *Hridaya* and which is leading to discomfort in *Hridaya* (chest) region is termed as *Hridroga*. This is a disease which involves *Rasa Dhatu* in the body, hence *Rasavaha Srotas* is afflicted. As *Hridaya* is the *Srotomula* of *Pranavaha Srotas* too, we can predict the involvement of *Pranavaha Srotas* in due course of time. *Sanga* and *Vimargagamana* is the type of *Srotodushti* involved in the whole manifestation of the disease. There is a possibility of affliction of *Pranavata, Udanavata, Vyanavata, Sadhaka Pitta, Avalambaka Kapha*. There may be affliction of *Ojas, Manas* too.

As far as the description of *Hridaya* is concerned, it is having three words – *Hri, Da* and *Ya*. It indicates continuous and repeated receiving and sending. *Hridroga* is the term which indicates the disturbance in receiving and sending of the nutrients.

## Nidana of Hridroga

अत्युष्णगुर्वन्नकषायतिक्तश्रमाभिघाताध्यशनप्रसङ्गैः॥1॥
संचिन्तनवेंगविधारणैध हदरामयः पञ्चविधः प्रदिष्ट Ma.Ni. – 29/1
व्यायामतीषणातिविरेकबस्तिचिन्ताभयन्त्रासमदाभिचाराः॥
सूर्यामसम्धारणकर्षणानि ढोगकर्तृनि तथाऽभिघातः। Ca.Ci. – 26/77
वेगाघातोष्णरक्षाप्रेरतिमानोपसेवितैः।
विरुद्धाध्यशनाजीर्णैरसात्म्यैश्चापि भोजनैः॥3॥ Su.Ut. – 43/3

- Excess consumption of *Ushna Virya*[1] substances
- Excess consumption of substances which are heavy to digest[2]
- Excess consumption of substances having astringent and bitter taste[3]
- Excess activities which lead to fatigue[4] or excess exercise
- Trauma[5] to the body
- Excess consumption of substances[6] before the digestion of previously ingested meal
- Excess sexual activity[7]
- Excess thinking[8]
- Suppression of the natural urges[9]
- Excess consumption of medicines which are of strong potency[10]
- Excess purgation and enema[11]
- Mental stress, fear[12]
- Other diseases[13]

**GK**

1 When we speak the effect of Rasa, it acts upto the level of tongue and oral cavity, whereas the effect of Virya encompasses not only the alimentary canal, even the intracellular compartment of human body can be considered. In other words when an individual consumes Ushna Virya subdtances such as chilli or mustard oil, we can have effect on any part of the body, but when it involves the region of the heart, he may be presented with cardiac manifestations.

2 When an individual consumes substances which are heavy to digest such as black gram items, that will lead to the over nourishment in the body. It is being mentioned that when an individual consumes excess carbohydrates and they are not required for the metabolic activities, that extra glucose will be converted and stored as glycogen and fat. It is being said that who consume excess overnourishing substances, he will be having the higher risk factor of development of cardiac disease.

3 Excess consumption of astringent and bitter taste is said to be responsible for the vitiation of Vata Dosha in the body.

4 The person who indulges in excess physically exhausting activities lead to fatigue. In most of the occasions, these kinds of activities will cause the depletion of carbohydrates and this in turn will mobilise the stored fat into circulating fat. This may become the risk factor for the development of ischemic heart disease.

One more hypothesis we can put forth is when the person is doing excess fatigue producing activities, it puts more pressure on the dominant chamber of heart i.e. left ventricle producing left ventricular hypertrophy.

5 In this situation, the term trauma refers to physical trauma. This kind of the trauma will lead to the excess blood loss and thus will be responsible for the manifestation of hypovolemic shock. This creates more burden on cardiac activity.

6 This etiological factor is leading to the overdistension of the stomach. This may be responsible for the commencement of vomiting. This is initiated by activation of vomiting centre and this is accompanied by both vagal and sympathetic afferent nerve fibres mediated by 5th, 7th, 9th, 10th and 12th cranial nerves. The people who are at risk of the development of heart disease, tachyarrhythmia is one of the phenomenon for the manifestation of the heart disease. This mechanism will not be leading to above said pathophysiology, when a person has the habit of the frequent habit of over consumption of the food substances.

7 Excess sexual activity is responsible for the activation of autonomic nervous system at different phases of sexual act. When there is activation of sympathetic nervous system, there will be increased heart rate, increased cardiac output, increased pulse rate etc. Frequent sexual intercourse may lead to increased cardiac output leading to extra burden on left ventricle, dominant chamber of the heart. Myocardial muscles receive blood supply only during diastolic phase of the heart.

8 Each thought process involves simultaneous signals in many portions of cerebral cortex, thalamus, limbic system and reticular formation of brain stem. A thought results from a pattern of stimulation of many parts of the nervous system at the same time. The stimulated areas of limbic system, thalamus and upper reticular formation are believed to determine the nature of thought, giving it such qualities as pleasure, displeasure, pain, comfort, crude modalities of sensation, localisation to gross areas of the body.

Thus, the nature of the negative thought process continuously can have an impact on cardiac function.

9 This cause is explained by the accurate understanding of situational syncopal episodes. A variety of activities including cough, micturition, defecation are associated with susceptible individuals for syncopal attacks. These activities are initiated by activation of manoeuvres like Valsalva, straining and coughing.

10 In earlier times, consumption of medicines through alimentary canal is preferred. Medicines which are of strong potency usually leads to the inflammation of stomach in particular. Frequent consumption of strong and potent medicines will lead to the frequent inflammation of alimentary canal.

Thus, frequent consumption of strong potent medicines will lead to transfer of the fluid from intravascular compartment to gastro intestinal lumen. Thus, the person may have a sequel of hypovolemia.

11 In these purificatory procedures, pathological mechanism is similar to the mechanism occurs in the administration of medicines of strong potency. In case of excess purgation or Virechana, there will be the inflammation of the small intestine and the administration of medicated enema (Basti) will cause the inflammation of large intestine. Thus, excess administration may lead to hypovolemia.

12 Excess exposure to mental stress and fear are responsible for the activation of sympathetic nervous system, leading to fight and flight response. This may initiate the rhythmic disturbances of the heart.

13 Charaka stated the description of Srotomula as Hridaya for above said Srotas. Hridroga can be seen in the patients who are suffering the illnesses afflicting either Pranavaha, Rasavaha Srotas. During the course of the affliction of any Srotas, sooner or later there will be the affliction of Srotomula or origin of Srotas.

As per the western perspective,

- The person who is suffering from chronic respiratory disease, he may develop the condition called cor pulmonale.
- In the person who is suffering from rheumatic fever, he will likely to develop the mitral valve prolapse.
- In the patient of wet beriberi, the person may develop cardiac failure.
- In the person who is suffering from chronic essential hypertension, he will likely to develop left ventricular hypertrophy.

- Suppression of vomiting[14]
- Etiological factors causing presence of *Ama*[15,16]

## Sampraptiof Hridroga

दूषयित्वा रसं दोषा विगुणा हृदयं गताः।
हृदि बाधां प्रकुर्वन्ति हृद्रोगं तं प्रचक्षते॥2॥

Ma.Ni. – 29/2; Su.Ut. – 43/-

- First there will be vitiation of *Dosha*
- There will be vitiation of *Rasa*
- Abnormal *Rasa* enters the *Hridaya* (chest) region
- Discomfort in the chest region will be manifested.

## Samprapti Ghataka of Hridroga

- **Dosha:** *Vyanavata, Sadhaka Pitta, Avalambaka Kapha*
- **Dushya:** *Rasa*
- **Srotas:** *Rasavaha* and *Pranavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni:** *Jatharagnimandya* and *Rasadhatvagnimandya*
- **Ama:** *Jatharagnimandyajanya* and *Rasadhatvagnijanya*
- **Udbhava Sthana:** *Amashaya*
- **Sanchara Sthana:** *Sarva Sharira* as *Rasa Dhatu* affliction is observed
- **Vyakta Sthana:** *Hridaya*

---

GK

[14] The process of vomiting as follows:

1. A deep breath
2. Raising of hyoid bone and larynx to pull the upper oesophageal sphincter open
3. Closing of glottis to prevent vomitus flow into the lungs
4. Lifting of the soft palate to close the posterior nares
5. Strong downward contraction of diaphragm along with simultaneous contraction of all abdominal muscles
6. Squeezing of stomach between diaphragm and the abdominal muscles resulting in enhanced intragastric pressure.
7. Relaxation of lower oesophageal sphincter leading to expulsion of gastric contents to the exterior.

   As far as heart disease is concerned, when the person suppresses the vomiting, this may lead to

   - Autonomic nervous system improper activation, when there is sympathetic nervous system is activated, that will lead to tachycardia which may further lead to poor cardiac activity. When there is parasympathetic nervous system is activated, there is a possibility of bradycardia which may lead to poor cardiac output.
   - When there is more severe contraction of diaphragm and if the person is having the risk factors for the ischemia, he may likely to develop inferior wall myocardial infarction.

[15] Following hypothesis can be put forth to understand the pathological understanding in this mechanism of Ama formation.

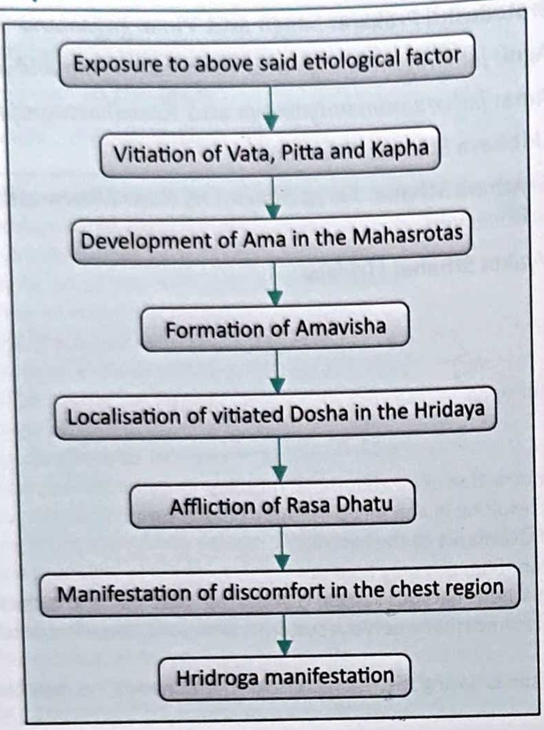
1. Alternate nutrient supply bypassing the alimentary canal. This means due to the absence of adequate nutrient supply through alimentary canal, the accumulated fat in the body in different parts gets mobilised and this will lead to the circulation of triglycerides. If these are get stuck in the coronary vessel, he may likely to get cardiac manifestation.
2. Formation of free radical in the body: This is formed due to causes such as
   - Inflammatory damage
   - Chemical carcinogenesis
   - Atherosclerosis
   - Cellular aging
   - In ionising radiation
   - In chemical toxicity etc.
3. Free radicals are formed within the mitochondrial inner membrane in the presence of cytochrome oxidase. These free radicals are
   - Superoxide oxygen (O’2)– one electron
   - Hydrogen peroxide (H2O2)– two electrons
   - Hydroxyl radical (OH)– three electrons
4. These are partially reduced intermediate species between O2 and H2O. These will cause degradation of proteins, DNA damage and cytoskeletal damage.

[16] When the person is continuously exposed to the aetiological factors leading to the presence of Ama in the body, refers to the presence of macromolecules in the alimentary canal will remain in the stomach for more than 2 hours secondary to closure of pyloric antrum.

- As the human being consumes more amount of carbohydrates during meal which are macromolecules in nature, are leading to the infection because of the presence of microbes in the stomach.
- As there is poor functioning of gastric juice (abnormal secretion of mucus, poor functioning of hydrochloric acid (normal pH 1.8 to 3.5; in case of abnormal diet pattern, pH >3.5); poor conversion of inactive pepsinogen into ative pepsin); inflammation of stomach occurs resulting in the formation of inflammatory markers.
- Inflammatory markers are proteins in nature. These are responsible for increased movement of fluid in the stomach and gastric mucosal damage occurs later. The conversion of macromolecules into intermediate or micromolecules will be decreased.
- Macromolecules or intermediate molecules will enter the interstitial compartment of stomach, which later enter the lymphatic system and later enters into the superior vena cava via the junction between left internal jugular vein and left subclavian vein.
- These macromolecules are heavier in weight, they move slower in the circulatory system. When the macromolecules pumped into the aorta, these molecules will move at the late phase of ejection of blood from left ventricle. The coronary vessels are situated at the root of aorta, the macromolecules will enter the coronary arteries, thereby the person who has considerable degree of Ama, likely to afflicted with heart disease.

- **Rogamarga** : *Abhyantara, Bahya* and *Madhyama*
- **Vyadhi Svabhava:** *Ashukari*
- **Sadhyasadhyata:** *Krichrasadhya* to *Asadhya*

## Samprapti chart


Exposure to above said etiological factor
Vitiation of Vata, Pitta and Kapha
Development of Ama in the Mahasrotas
Formation of Amavisha
Localisation of vitiated Dosha in the Hridaya
Affliction of Rasa Dhatu
Manifestation of discomfort in the chest region
Hridroga manifestation

## Samanya Lakshana of Hridroga

वैवर्ण्यमूर्च्छज्वरकासहिक्काश्वासास्यवैरस्य तृषाप्रमोहाः छर्दिः कफोत्क्लेशरुजोऽरुचिश्च हृद्रोगजाः स्युविविधास्तथाऽम्ये॥ Ca.Ci. – 26/78

- Discolouration of the body parts[17]
- Altered state of consciousness[18]
- Raised body temperature[19]
- Cough[20]
- Hiccup[21]
- Breathing discomfort[22]
- Abnormal taste perception in the mouth
- Thirst[23]
- Confusion[24]
- Vomiting
- Nausea[25]
- Pain[26]
- Tastelessness[27]

## Sankhya Samprapti of Hridroga

**5 types** – as per *Charaka, Madhavakara, Vagbhata*

1. *Vataja*
2. *Pittaja*
3. *Kaphaja*
4. *Sannipataja*
5. *Krimija*

**4 types:** as per *Sushruta,*

1. *Vataja*
2. *Pittaja*

---

**GK**

[17] **वर्णभेदेन ग्लानिहर्परीक्ष्यस्नेहा** Ca.I. – 1/10
As per this reference, we should not restrict the word Vaivarnya only to discolouration. It includes the texture of the skin too. Excess oedema or reddish discolouration or hardness of the swelling can be considered as Vaivarnya. In this context of Hridroga, we have to consider cyanosis or pallor or oedema on the different parts, both feet in particular.

[18] This is attributable to the initiation of syncopal attack. This occurs due to the poor pumping activity of the heart.

[19] This is attributable to the infection and inflammatory mechanism of the heart.

[20] This is observed in the person who is presented with left sided heart failure either atrium or ventricle. This is usually associated with expectoration of pink and frothy sputum.

[21] This clinical symptom is seen when the person is afflicted with involvement of inferior wall of the heart which is in direct contact with diaphragm. Hiccup is usually seen when there is excess irritation of the diaphragm.

[22] This is the cardinal symptom of the heart disease. The grading of breathless in cardiac disease is breathlessness on exertion, paroxysmal nocturnal dyspnoea, orthopnea and Cheyne Stokes respiration. Refer the Nidana Prakasha written by the author for the above description in detail.

[23] 3 mechanisms are responsible for the manifestation of thirst.
1. Decrease in extracellular fluid volume and arterial pressure
2. Increased secretion of angiotensin II
3. Dryness of the mouth and oesophagus

Among the above mentioned causes, hypovolemia is considered to be one of the mechanism responsible for thirst.

[24] This clinical symptom is attributable to the poor cerebral blood supply which happens as a consequence of syncopal attack.

[25] Vomiting and nausea are the symptoms observed in an individual who has cardiac compromise. This is seen in the individuals who are suffering from right sided heart failure. These symptoms are attributable to backward failure extending from right side of the heart till portal vein.

[26] This is attributable to poor blood supply to the myocardial musculature. The clinical conditions which are responsible for tachycardia such as anemia or hypertension or excess exercise will lead to poor coronary circulation in the people who are having the risk of development of atherosclerosis.

[27] Tastelessness can be attributable to increased secretion in the stomach and small intestine which is a sequel of backward failure which in turn leads to poor gastric secretion.

3. *Kaphaja*
4. *Krimija*

## Vataja Hridroga:

शोकोपवासव्यायाम शुष्काल्प भोजनः।
वायुराविश्य हृदयं जनयत्युत्तमां रुजम्॥30॥
वेपथुर्वेष्टनं स्तम्भः प्रमोहः शून्यता देरः।
हृदि वातातुरे रूपं जीर्णे चात्यर्थवेदना॥31॥ Ca.Su. – 17/30,31

हृच्छून्यभावद्रवशोषभेद- स्तम्भाः समोहाः पवनाद्विशेषः।
Ca.Ci. – 26/79

आयम्यते मारुतजे हृद्रोगं तुद्यते तथा।
निर्मथ्यते दीर्यते च स्फोटयते पाठ्यतेऽपि च॥3॥
Ma.Ni. – 29/3; Su.Ut. – 43/6

वातेन शूल्यतेऽत्यर्थ तुद्यते स्फुटतीव च॥39॥
भिर्यते शुष्यति स्तब्ध हृदय शुन्यताद्रवः
अकस्माद्दीनता शोको भयं शब्दासहिष्णुता॥40॥
बेपथुर्वेन मोह. श्वासरोधोऽल्पनिद्रता। A.Hr.Ni. – 5/39,40

- If the person is having grief, fasting, excess exercise, excess intake of ununctuous and dry substances, inadequate or little amount of food intake
- *Vata Dosha* is vitiated and it reaches *Hridaya* region
- Severe pain in the chest
- Involuntary movements
- Cramps
- Stiffness of the chest region
- Altered state of consciousness
- Sensation of emptiness
- Severe pain which worsens after the digestion of food

As per *Sushruta*,

- Chest discomfort simulates pulling type of pain,
- Crushing type of pain
- Pricking or piercing type of pain
- Splitting type of pain

As per *Vagbhata*,

- Severe pain in the chest which simulates breaking or tearing type of pain
- Cracking type of pain
- Stiffness
- Sudden stoppage of function of heart
- Sense of emptiness

## Pittaja Hridroga

उष्णाम्ललवणक्षारकटुकाजीर्णभोजनैः।
धात हृदि पित्तं प्रकुप्यति॥32॥
हाहस्तिक्तता बक्रे तिकाम्लोङ्गिरणं क्लमः।
ष्णा मूर्च्छा भ्रमः खेदुः पित्तहृद्रोगलक्षणम्॥33॥ Ca.Su. – 17/32,33

पित्तात्तमोदूयनदाहमोहाः संत्रासतापज्वरपीतभावाः॥ Ca.Ci. – 26/79

तृष्णोष्मादाहचोषाः स्युः पैत्तिके हृदयक्लमः।
धूमायनं च मूर्च्छा च स्वेदः शोषो मुखस्य च॥4॥
Ma.Ni. – 29/4; Su.Ut. – 43/7

पितातृष्णा भ्रमो मूर्च्छा दाहः स्वेदोऽम्लकः क्लमः॥41॥
छर्दनं चाम्लपित्तस्ये धूमकः पीतता ज्वरः। A.Hr.Ni. – 5/41

- Excess intake of *Ushna Virya* (hot potency) substances
- Excess intake of *Amla* (sour), *Lavana* (salt), *Katu* (pungent) *Rasa* substances
- Excess intake of *Kshara* substances such as vinegar
- Excess food intake in a state of *Ajirna* (indigestion)
- Excess intake of alcohol
- Anger state
- Exposure to hot sunlight
- *Pitta Dosha* gets vitiated in *Hridaya*

### As per Charaka, the Lakshana of Pittaja Hridroga:

- Burning sensation in the chest region
- Bitter taste in the mouth
- *Tiktamlodgara* (bitter or sour eructations or both)
- Fatigue without physical exertion
- Thrist
- Altered state of consciousness
- Giddiness
- Excess sweating
- Darkness in front of the eyes
- Confusion
- Fearfulness
- Raised body temperature
- Yellowish discolouration of body parts

### As per Sushruta,

- Thirst
- Local or generalised raise of temperature
- Burning sensation all over the body
- Burning sensation on the sides of the chest
- Chest discomfort without any physical exertion
- Feeling of smoke coming through one's mouth
- Altered state of consciousness
- Excess sweating
- Dryness of mouth

### As per Vagbhata:

- Thirst
- Giddiness
- Altered state of consciousness

- Burning sensation
- Sweating
- Fatigue without any physical exertion
- Vomiting
- Burning sensation in the chest region associated with sour or bitter eructation
- Sensation of smoke coming through mouth
- Yellowish discolouration of the body parts
- Raise of temperature

## Kaphaja Hridroga

अत्यादानं गुरुस्निग्धमचिन्तनमचेष्टनम्।
निद्रासुखं चाभ्यधिकं कफहृद्रोगकारणम्॥34॥
हृदयं कफहृद्रोगे सुप्तं स्तिमितभारिकम्।
तन्द्रारुचिपरीतस्य भवत्यश्मावृतं यथा॥35॥ Ca.Su. – 17/34,35

स्तब्धं गुरु स्यात् स्तिमितं च मर्म कफात् प्रसेकज्वरका सतन्द्राः।
Ca.Ci. – 26/80

गौरवं कफसंस्त्रावोऽरुचिः स्तम्भोऽग्निमार्दवम्।
माधुर्यमपि चास्यस्य बलासावतते हृदि॥5॥
Ma.Ni. – 29/5; Su.Ut. – 43/8

श्लेष्मणा हृदयं स्तब्धं भारिक साइमगर्भवत्॥42॥
कासान्झिसाद निष्ठीवनिद्रालस्यारुचिज्वरा। A.Hr.Ni. – 5/42

### Causes of Kaphaja Hridroga

- Excess intake of food
- Excess intake of *Guru* (heavy to digest) food substances
- Excess intake of *Snigdha* (unctuous) food substances
- Not having any thinking at all
- Physical inactivity
- Excess sleep

## Lakshana of Kaphaja Hridroga

### According to Charaka

- Numbness
- Feeling of wet cloth covering whole body
- Heaviness of the body parts
- Drowsiness
- Tastelessness
- Feeling of stone kept over one's chest
- Stiffness
- Excess salivation
- Raised body temperature
- Cough

### As per Sushruta

- Heaviness of body parts
- Excess salivation from one's mouth
- Tastelessness
- Stiffness
- Loss of appetite
- Sweetish taste in the mouth

### As per Vagbhata

- Stiffness
- Heaviness of the chest
- Feeling of stone kept over one's chest
- Cough
- Loss of appetite
- Sputum production
- Excess sleep
- Laziness
- Tastelessness
- Raised body temperature

## Tridoshaja Hridroga

हेतुलक्षणसंसर्गादुच्यते सान्निपातिकः। Ca.Su. – 17/36
विद्यात्रिदोषं त्वपि सर्वलिङ्गम्– Ma.Ni. – 29/5; Ca.Ci. – 26/80

- Causative factors of all three *Dosha* are seen in this type of *Hridroga.*
- *Lakshana* of *Tridoshaja Hridroga* are mixed *Lakshana* of *Vataja, Pittaja* and *Kaphaja Hridroga* altogether.

## Krimija Hridroga

त्रिदोषजे तु हृद्रोगे यो दुरात्मा निषेवते॥36॥
तिलक्षीरगुडादीनि ग्रन्थिस्तस्योपजायते।
मर्मैकदेशे संक्लेदं रसश्चात्योपगच्छति॥37॥
संक्केदात् क्रिमयश्चास्य भवन्त्युपहतात्मनः।
ममैकदेशे ते जाताः सर्पन्तो भक्षयन्ति च॥38॥
तुद्यमानं स हृदयं सूचीभिरिव मन्यते।
छिद्यमानं यथा शस्त्रैर्जातकण्डूं महारुजम्॥39॥
हृद्रोगं क्रिमिजं त्वेतैर्लिङ्गैर्युका सुदारुणम्।
त्यरेत जेतुं तं विद्वान् विकारं शीघ्रकारिणम्॥40॥
Ca.Su. – 17/36-40

तीव्रार्तितोदं कृमिजं सकण्डूम्॥ Ca.Ci. – 26/80

तीत्रार्तितोदं क्रिमिजं सकण्डूम्।
उत्क्लेदः ष्ठीवनं तोदः शूलं हल्लासकस्तमः।
अरुचिः श्यावनेत्रत्वं शोथश्च क्रिमिजे भवेत्॥
Ma.Ni. – 29/5-6; Su.Ut. – 43/9

कृमिभिः श्यावनेत्रता॥43॥
तमःप्रवेशो हल्लासः शोषः कण्डूः कफलुति।

हृदयं प्रततं चात्र क्रकचेनेव दार्यते॥44॥
चिकित्सोमयं घोर तं शीघ्रं शीघ्रकारिणम्।

A.Hr.Ni. – 5/43-45

- Excess intake of *Tila* (sesamum seeds), milk[28], jaggery[29] etc
- *Krimija Hridroga* is caused by the vitiation of all three *Dosha* altogether
- Formation of nodules in the *Hridaya* (heart) region
- *Rasa* becomes sticky in this region of *Hridaya*
- These organisms will crawl and eat away the structures of *Hridaya*.
- The patient feels as if his heart is being pierced by weapons
- This condition is associated with itching, pain in the chest region
- Very severe pricking type of pain
- Nausea or vomiting or both
- Darkness in front of the eyes
- Tastelessness
- Blackish discolouration around the eyes
- Swelling

## Upadrava of Hridroga

कुमः सादो भ्रमः शोषो ज्ञेयास्तेषामुपद्रवाः।
किमिजे किमिजातीनां लैष्मिकाणां च ये मताः॥7॥

Ma.Ni. – 29/7

- Fatigue[30] without any physical activity
- Sluggish movement of body parts[31]
- Giddiness[32]
- Dryness of the body parts[33]

## Sadhyasadhyata of Hridroga

( हृद्रोगः कष्टदः कष्टसाध्य उक्तो महर्षिभिः ) Ca.Su. – 17/36
हृद्रोगं क्रिमिजं त्वेतैर्लिङ्गैबुवा सुदारुणम्। Ca.Su. – 17/40

There is no specific mentioning of *Sadhyasadhyata* of different subtypes of *Hridroga* in the literatures. In *Hridroga*, primary and major *Rogamarga* afflicted will be *Madhyma*. Hence, any of the type of *Hridroga* is by nature is difficult to cure.

Further, *Sannipataja Hridroga* is considered to be difficult to cure. *Krimija Hridroga* is considered to be *Daruna* in nature (*Rogabala* is more than *Rogibala*).

### Key points of the chapter

- Hridroga is a spectrum of the diseases where we can observe dysfunction in terms of the Hridaya. This disease involves Rasavaha Srotas primarily and there will affliction of Pranavaha Srotas in due course of time.
- This is Amashayasamuttha Vikara with Sanga and Vimargagamana as Srotodushti can be observed in this particular disease.
- Though all Rogamarga affliction can be observed, but Madhyama Rogamarga is the major Rogamarga can be involved during the progression of the disease.
- As far as the types of Hridroga are concerned, Charaka, Vagbhata and Madhavakara mentioned 5 types of Hridroga
  1. Vataja,
  2. Pittaja,
  3. Kaphaja,
  4. Sannipataja and
  5. Krimija,
- Whereas Sushruta mentioned 4 types of Hridroga –
  1. Vataja,
  2. Pittaja,
  3. Kaphaja
  4. Krimija.
- As per Sushruta, Tridosha vitiation is seen in Krimija Hridroga.

---

[28] Brucella, pseudomonas and mycobacterium tuberculosis are some of microbes observed in milk.

[29] It is being observed that there will be increased bacterial proliferation in stored jaggery and 9250 per gram of fungal load is usually observed in fresh jaggery.

If the person is consuming excess amount of jaggery, these microbes will enter the human body easily.

[30] This is attributable to poor peripheral circulation secondary to reduced cardiac output

[31] This can be attributable to poor venous drainage which in turn leads to the bilateral pedal oedema, thus the person may have sluggish movement of body parts secondary to excess fluid accumulation of the body parts

[32] This is attributable to poor circulation to the head and neck leading to the manifestation of syncopal attack. This occurs as a consequence of forward failure i.e. adequate blood will not be pumped into the aorta, so that sufficient blood will not move into cerebral vessels.

[33] This can attributable to the poor peripheral circulation owing to reduced cardiac output. Due to reduced peripheral circulation, sweating etc will not occur and the person may have dryness of the skin on exposure to external environment.

## Self-Assessment: Questions for Reviews

### Short essays

- Explain in brief about Nidana of Hridroga
- Explain the Lakshana of Hridroga
- Explain Krimija Hridroga
- Explain Vataja Hridroga
- Explain Upadrava of Hridroga

### MCQs

**1. The affliction of Vata in Hridroga occurs is**

a. Samana Vata; b. Vyana Vata;
c. Apana Vata; d. Udana Vata

*Answer*: (b)

**2. As per Sushruta, the types of Hridroga is**

a. 3; b. 4;
c. 5; d. 2

*Answer*: (b)

**3. Consumption of Guda is responsible for the manifestation of**

a. Kaphaja Hridroga; b. Pittaja Hridroga;
c. Krimija Hridroga; d. Sannipataja Hridroga

*Answer*: (c)

**4. Major Rogamarga involved in the manifestation and progression of Hridroga is**

a. Bahya; b. Abhyantara;
c. Madhyama; d. All of the above

*Answer*: (c)

**5. Bhrama is considered to be ..............of Hridroga**

a. Purvarupa; b. Rupa;
c. Arishta; d. Upadrava

*Answer*: (d)

**6. Which part of the heart is afflicted in the patient suffering from cough with pink frothy sputum?**

a. Right atrium;
b. Right ventricle;
c. Left atrium;
d. Right atrium & right ventricle

*Answer*: (c)

**7. When the diagnosis of cor pulmonale is made, which of the following part of the heart is afflicted in the diseased individual?**

a. Right ventricle and right atrium;
b. Left atrium and left ventricle;
c. Right and left atria;
d. Right and left ventricles

*Answer*: (a)

**8. Which of the following is not included in acute coronary syndrome?**

a. Acute myocardial infarction;
b. Dissecting aortic aneurysm;
c. Pulmonary embolism;
d. Congestive cardiac failure

*Answer*: (d)

**9. Which of the following is used in the diagnosis of cardiac diseases?**

a. Electro encephalogram;
b. Electrocardiogram;
c. Electromyogram;
d. Nerve conduction study

*Answer*: (b)

**10. Which of the following is not situated in Hridaya?**

a. Avalambaka Kapha; b. Sadhaka Pitta;
c. Alochaka Pitta; d. Vyana Vata

*Answer*: (c)

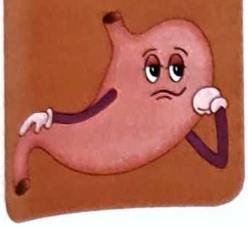
### Chapter resources

- https://www.ganeshdiagnostic.com/blog/complete-guide-to-heart-disease
- Charaka Samhita, Sutra Sthana – 17th chapter – Kiyantah Shirasiya Adhyaya
- Charaka Samhita, Chikitsa Sthana -26th chapter – Trimarmiya Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra – 43rd chapter – Hridroga Pratishedha Adhyaya
- Ashtanga Hridaya Nidana Sthana – 5th chapter – Rajayakshmadi Nidana Adhyaya
- Madhava Nidana – 29th chapter – Hridroga Nidana
- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee brothers, New Delhi, 2005
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

24



# Shotha

## Learning Objectives

- To learn the concept of Shotha
- To know the Nidana of Shotha with current understanding
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To enlist the types of Shotha
- To describe the Vidhi Samprapti of Shotha
- To describe Purvarupa, Vishishta Lakshana, Sadhyasadhyata of Shotha with current understanding
- To differentiate Doshaja Shotha

## Introduction

*Shotha* is the spectrum of the diseases which is having the cardinal feature of *Utsedha* (swelling). This is considered to be manifested due to the involvement of *Rasa Dhatu*. This can happen either locally or half of the body or generalized.

Depending upon the site of the lesion, we can able to predict the involvement of different *Dhatu*. As far as affliction of *Srotas* is concerned, *Rasavaha Srotas* is primarily afflicted with *Sanga* and *Vimargagamana* as the nature of *Srotodushiti* happening during the course of the disease.

**सर्वमुत्सेधं शोफमित्याहु** Atanka Darpana, Ma.Ni. – 36/1,2

Any kind of swelling occurring in any part of the body is termed as *Shopha* or *Shotha*. It may be either localised or generalized.

## Nidana of Shotha

**शुद्धयामयाभुतकृशावलानां क्षाराम्टतीरणोष्णगुरुपसेवा।**
**दध्यामसृच्छाकविरोधिदुष्टगरोपसृष्टान्न निषेवणं च॥4॥**
**अशस्यचेष्टा न च देशुद्धिर्मर्मषघातो विषमा प्रसूतिः।**
**मिथ्योपचारः प्रतिकर्मणां च निजस्य हेतुः श्वयथोः प्रदिष्टः॥5॥**

Ma.Ni. – Shotha/4-5; Ca.Ci. – 12/5-6

- In case of administration of purificatory treatment[1]
- As a secondary factor of other illness[2]
- When the person is doing fasting or during starvation[3]

---

GK

[1] The medications which are used for purificatory therapy (Shodhana) will have Ushna, Tikshna, Sukshma, Vyavayi and Vikasi qualities. These are responsible for the inflammation of the alimentary mucosa. The medicines used for Vamana (emesis) will lead to the inflammation of upper alimentary canal. The medicines used for Virechana (purgation) will lead to the inflammation of lower alimentary canal, small intestine in particular. The medicines used for Basti line of treatment, will lead to the inflammation of colon or large intestine.

[2] Whenever an individual is suffering from any type of either acute or chronic illness, that will activate the leucocytes which in turn will produce interleukins. These interleukins are proteins made inside the body due to the exposure of the body to the pathogens. Let us take for example, if an individual is having the trauma, that will stimulate the leucocytes of the body to produce excess interleukins in the interstitial compartment and this will increase the oncotic pressure of the interstitial compartment and this will lead to the excess accumulation of fluid in the interstitial compartment leading to the formation of oedema.

[3] Even though the tissues of the body preferentially use carbohydrates for energy over both fat and protein, the quantity of carbohydrate normally stored in the entire body is only a few 100 gms (mainly as glycogen in the liver and muscles), and it can supply the energy required for body functions for only half a day. Therefore, except for the first few hours of starvation, the major effects of metabolism are sequential depletion of fats and proteins. The final outcome could occur is protein depletion in the body even in the blood vessels too. Thus, in severe form of starvation, the person may develop slow pitting type of oedema.

- When the person is emaciated[4]
- When the person is having weakness[5] or reduced physical strength
- When the person is consuming *Kshara*[6] (alkaline) substances
- When the person is consuming excess *Amla* (sour[7]) substances
- When the person is consuming excess *Tikshna* (irritating or chilli) like substances[8]
- Excess consumption of *Guru*[9*](heavy) substances
- Excess consumption of *Dadhi*[10] (curds)
- Excess exposure to *Ama*[11]
- Consumption of *Mrit* (mud)[12]
- Excess consumption of *Shaka* (vegetables)
- Excess consumption of *Virodhi Ahara*[13] (substances which are having opposite qualities)
- Consumption of *Dushta Ahara*[14]
- Consumption of food substances having *Gara Visha*[15]
- Patient of *Arshas*[16]
- Person having sedentary life style[17]
- When the person is not having proper cleanliness of

---

[4] When an individual is presented with too much emaciation, there is a possibility of reduction in the proteins in the body. This implies there will be reduction in the proteins in the blood vessels too. This results in the reduced oncotic pressure in the capillaries. When there is reduction in oncotic pressure, that will lead to movement of liquid portion from the capillaries to interstitial space. Thus, an individual will have slow pitting type of oedema.

[5] In this type of etiological factor, the mechanism will be similar to that of starvation.

[6] The consumption of Kshara, Amla and Tikshna substances will lead to the increase of Tejo Mahabhuta in the body and thus this is responsible for the increase of Pitta in the body because of Ushna Virya.

[7] Excess consumption of Amla Rasa substances will increase the hydrogen ions in the stomach leading to the further acidification of gastric juices. These juices are considered to be responsible for the erosion of gastric mucosa and thus will cause inflammation of gastric mucosa.

[8] As these substances stay more time in the stomach for about two hours, these will cause inflammation of stomach and this will lead to vomiting. Due to the increased peristaltic movements of the stomach, these substances will move into the small intestine causing inflammation of small intestine and will lead to diarrhoea.

[9] Excess consumption of Guru (heavy) substances will lead to the increase of Kapha Dosha in the body based on the concept of Samanya Vishesha Siddhanta. As the person consumes Guru substances, it may accumulate in the stomach for more than the required amount of time. This may lead to the infection followed by inflammation of the stomach. Swelling of the epithelial cells of the stomach may be observed as one of the signs of inflammation, the other signs of inflammation include pain, local raise of temperature, redness.

[10] Dadhi is considered to be having Madhura and Amla Rasa. Madhura and Amla Rasa may lead to the vitiation of Kapha and Pitta Dosha. Amla Rasa may lead to the vitiation of Pitta Dosha. Amla Rasa substance may lead to the inflammation of gastric mucosa. One of the main features of inflammation is swelling, other features are pain, local raise of temperature, redness.

[11] Refer the context of Ama mentioned in Hridroga for the description of Ama in the body.

[12] The people who are severely undernourished can have aberration of diet including pica (consumption of non nutritive substances such as clay, charcoal, ice, dirt or paint). This is usually seen in patients who are having anemia. The person who are presented with anemia, may have deficiency of protein, minerals and this phenomenon leads to the reduction of oncotic pressure and this could be the reason for the development of oedema.

[13] When an individual consumes more and more quantity of Viruddha Ahara (incompatible substances), this will lead to the inflammation of alimentary canal, lower alimentary canal in particular.

[14] This can be attributable to severe vomiting and diarrhoea with prostration (act of lying down flat) can be observed with 2-4 hours ingestion caused by a toxin present in the food. This is observed in food poisoning. The foods contaminated are usually cooked meat or pies containing meat and starches. In this situation, we can observe the inflammatory reaction in the stomach and intestines. One of the features of inflammation is swelling.

[15] गरसंयोगजं चान्यद्गरसंज्ञं गरप्रदम्। कालान्तरविपाकित्वान्न तदाशु हरत्यसून्॥
गरार्थः संयोगो येषां ते गरसंयोगा द्रव्यभेदाः, तेभ्यो जातं गरसंयोगजम्। तच्च चिरकारिरोगजनकप्रमाणहरम्॥
गरं तु द्विविधं - निर्विषद्रव्यसंयोगकृतं, तथा सविषद्रव्यसंयोगकृतं च, तत्राद्यं गरसंज्ञम्, उत्तरं तु कृत्रिममिति व्यवस्था।
Ca.Ci. – 23/14

Visha is any substance which produces discomfort to the patient. Gara Visha is the one which is considered to be non toxic, but consumption of Gara Visha is responsible for the adverse effects which may be produced after a long time and it will not cause death of the individual. Gara Visha is of two types – Savishadravyayukta (mixed with toxic substances) and Nirvishadravyayukta (not mixed with toxic substances). As these substances may stay in the body for longer time, that may lead to the inflammation of the alimentary canal in due course of time. As already stated, swelling is one of the features of inflammation.

[16] The term Arshas refers to varicosity of haemorrhoidal veins. In the patient of Arshas, we can either see the swelling of the anal region which could be due to thrombosis of haemorrhoidal veins or the ascites (accumulation of fluid in the peritoneal cavity and this is attributable to portal hypertension).

[17] To understand this concept, we need to learn the physiology of lymphatic system. Whenever, there is entry of excess amount of proteins in the interstitial compartment, this will lead to the stretch of lymphatic capillaries. When there is stretch of lymphatic capillaries, it will lead to the contraction of smooth muscle of lymphatic capillary. Certain other factors which influence movement of fluid from interstitial compartment are

1. Contraction of surrounding skeletal muscles
2. Movement of parts of the body
3. Pulsations of arteries adjacent to lymphatics

*the body*[18] (not undergoing purificatory therapy).

- When the person is encountered with *Marmopaghata (injury to vital parts*[19]).
- The lady having *Vishama Prasuti*[20] (difficult labour)
- *Pratikarma Mithyopachara*[21] (improper following of diet and regimen after treatment).

## Nidana of Agantuja Shotha

बाह्यास्त्वचो दूषयिताऽभिघातः कोष्ठाश्मशस्त्राझिविपायसाद्यैः।
आगन्तुहेतुः
Ca.Ci. – 12/7

*Trauma*[22] to the body parts with log, stone, weapon, fire, toxic substances or metals.

## Samprapti of Shotha

रक्तपित्तकफान् वायुर्दुष्टो दुष्टान् बहिः सिराः।
नीत्वा रुद्धगतिस्तैर्हि कुर्यात्त्वयांससंश्रयम्॥1॥
उत्सेधं संहतं शोथं तमाहुर्निचयादतः। Ma.Ni. – Shotha/1-2

- There will be vitiation of *Vata, Rakta, Pitta and Kapha*[23]
- Vitiated *Dosha* will come to the exterior in between the *Tvak* and *Mamsa* by obstruction.
- Swelling will be manifested in the body parts where obstruction of the vitiated *Dosha* taking place.

## Samprapti Ghataka

- **Dosha :** *Tridosha* involvement
- **Dushya :** *Rasa, Rakta, Mamsa*
- **Srotas :** *Rasavaha, Raktavaha* and *Mamsavaha Srotas*
- **Srotodushti :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya* in case of *Nija Shotha*
- **Ama :** *Jatharagnimandyajanya* in case of *Nija Shotha*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Tvak*
- **Rogamarga :** *Abhyantara, Bahya* in the order of clinical manifestation
- **Svabhava :** *Ashukari* or *Chirakari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*

## Purvarupa of Shotha

तत्पूर्वरूपं दवथुः सिरायामोऽङ्गगौरवम्॥3॥ Ma.Ni. – Shotha/3
ऊष्मा तथा स्यादवथुः सिराणामायाम इत्येव च पूर्वरूपम्।
Ca.Ci. – 12/10

- **Davathu**[24]: burning sensation in the affected part
- **Sirayama**[25]: visible dilatation of the blood vessels, vein in particular
- **Anga gourava**[26]: heaviness of the body parts

---

4. Compression of the tissues by objects outside the body

By observing above factors influencing movement of fluid in interstitial compartment, those people who have sedentary lifestyle, we can see less movement of fluid from interstitial compartment leading to the manifestation of oedema.

[18] When an individual is having improper administration of Panchakarma therapy, that will lead to the circulation of inflammatory markers throughout the body, one of the major symptoms observed in this particular situation could be itching all over the body leading to anaphylactic reaction. This is considered to be an allergic reaction which leads to increased capillary permeability.

[19] Injury to any of the to vital parts will lead to traumatic shock leading to hypovolemia. Without any loss of blood volume, can lead to increased vascularity som much that even the normal amount of blood becomes incapable of filling the circulatory system adequately. This pathological mechanism can occur due to the sudden loss of vasomotor tone throughout the body leading to the massive dilatation of veins. This may lead to the appearance of oedema of the distal parts of the body.

[20] This term refers to the appearance of the Shotha after improper diet after undergoing the treatment. Let us take the example of wound in the lower limb. It is being said that the person who is having the appearance of wound, he should avoid the substances prepared from black gram. Due to the consumption of black gram items, he is likely to have appearance of pus formation in the wound in the body.

[21] This term refers to the appearance of the Shotha after improper diet after undergoing the treatment. Let us take the example of wound in the lower limb. It is being said that the person who is having the appearance of wound, he should avoid the substances prepared from black gram. Due to the consumption of black gram items, he is likely to have appearance of pus formation in the wound in the body.

[22] Trauma can lead to two different types of abnormalities of cardiac output:

1. Cardiac abnormalities which reduce cardiac output due to the compromise in the pumping ability of heart
2. Factors which reduce venous return also reduce cardiac output due to poor venous return to the heart.

Both the phenomena will lead to the transfer of the fluid from intravascular to interstitial compartment, thus causing the mechanism of oedema in the affected part.

[23] In a disease, presence of pain indicates the dominance of Vata Dosha, presence of redness may imply the association of Pitta and Rakta, local raise of temperature indicates the dominance of Pitta and the appearance of swelling suggests the vitiation of Kapha Dosha during the course of the illness.

[24] This is attributable to the excess fluid movement into the interstitial compartment from intravascular compartment. In other words, there will be increased blood supply to the affected part, leading to the raise of body temperature. Thus, the person may have burning sensation of the affected part.

[25] Sirayama is attributable to the increased blood supply along with development of collaterals of the blood vessels. This will lead to the redness of the area afflicted.

[26] Anga Gourava is attributable to the transfer of fluid from intravascular to interstitial compartment and excess of proteins in the interstitial compartment. Thus, the person may have heaviness of the affected parts. Due to the derangement of Sterling forces, more amount of flu-

## Samanya Lakshana of Shotha

समीरचं स्यादनपस्थितत्वं सोत्सेधमध्माऽथ सिरातनुत्वम्।
सलोमहर्षश्च विषर्णता च सामान्यलिङ्गं श्वयथोः प्रदिष्टम्॥

Ma.Ni. – Shotha/6; Ca.Ci. – 12/11

- **Sagourava**[27]: heaviness of the body parts
- **Anavasthitatva**[28]: unsteadiness of the swelling
- **Utsedha**[29]: globular swelling
- **Ushma**[30]: local or generalized body temperature
- **Siratanutva:** thinning of the blood vessels
- **Lomaharsha:** horripulation
- **Vivarnata**[31]: discolouration

## Bheda of Shotha

सर्वे हेतु विशेषस्तु रूपभेदान्नवात्मकम्॥2॥
दोषैः पृथग्द्रयैः सर्वैरभिघाताद्विषादपि। Ma.Ni. – Shotha/2-3
त्रिविधो निजश्च सर्वार्धगात्रावयवाधितत्वात्॥7॥ Ca.Ci. – 12/7

### Types of Shotha

9 types based on *Dosha* dominance and other etiological factors.

1. *Vataja*
2. *Pittaja*
3. *Kaphaja*
4. *Vatapittaja*
5. *Pittakaphaja*
6. *Vatakaphaja*
7. *Sannipataja*
8. *Abhighataja*
9. *Vishaja*

Based on the appearance on the body part of the patients, 3 types of *Nija Shotha*.

1. *Sarva*[32] (swelling all over the body)
2. *Ardhagatraja*[33] (swelling in half side of the body)
3. *Avayavaja* [34] (swelling in one part of the body)

## Vataja Shotha

चलस्तनुत्वक्परुषोऽरुणोऽसितः प्रसुप्तिहर्षार्तियुतोऽनिमित्ततः।
प्रशाम्यति प्रोन्नमति प्रपीडितो दिवाली च श्वयथुः समीरणात्॥12॥

Ca.Ci. – 12/120

- **Chala:** unstable swelling
- **Tanu Tvak:** thinning of the skin
- Rough skin
- Reddish or blackish discolouration of the swelling
- Associated with numbness, horripulation, severe pain without any identifiable reason
- Rapid disappearance of the pitting on pressure when we do pitting on pressure test
- Worsening of the symptoms in day time

## Pittaja Shotha

मृदुः सगन्धोऽसितपीतरागवान् भ्रमज्वरस्वेदतृषामदान्वितः।
य उप्यते स्पर्शरुगाझिरागकृत् स पित्तशोथो भृशदाहपाककवान्॥13॥

Ca.Ci. – 12/13

- Soft swelling
- Foul smell from the swelling
- Blackish, yellowish discolouration and redness of the swelling
- Giddiness
- Fever
- Excess sweating
- Thirst
- Altered state of consciousness

---

GK

id move from the capillaries to the interstitial spaces, there will sluggish movement of the blood in the small vessels happens. This is called sludging of the blood. Because of this phenomenon, the person will have heaviness of the body parts.

[27] As per Ayurveda fundamentals, Rupa (clinical feature) is the complete manifestation of Purvarupa (prodromal symptom). Gouravata is the complete manifestation of prodromal symptom. This is attributable to the excess accumulation of fluid in the interstitial compartment as well as sluggish movement of small blood vessels (sludging of blood). Both of the above pathological events resulting in the heaviness of the body parts.

[28] To understand this concept, we have to understand the concept of Sterling forces. Abnormal hydrostatic pressure and oncotic pressure in the capillaries and interstitial spaces are responsible for the increased accumulation of fluid in the interstitial spaces. Let us learn the concept with an example. If the concentration of protein is increased in the interstitial spaces of more than 4 mmHg, that will lead to more accumulation of fluid in the interstitial space and reduction of the protein in the interstitial space will lead to the reduction of fluid in the interstitial spaces. Thus, depending upon the concentration of the protein, salts in the interstitial compartment and variations in hydrostatic pressure may lead to variations in the swelling of the affected parts.

[29] This term is attributable to the increase of interstitial space of the affected part. This occurs due to the excess movement of fluid from intravascular to interstitial compartment.

[30] This term is attributable to increased vascularity to the affected part where Shotha is present.

[31] The term Vivarnata refers to discolouration. The discolouration can be either redness or bluish or yellowish discolouration or pallor.

[32] As per current understanding, generalised oedema is termed as anasarca or dropsy. This is seen in the patients having cardiac oedema, renal oedema, hepatic oedema and hypoproteinemia.

[33] Swelling in half side of the body may be observed in the patients suffering from hemiplegia or poor usage of the half of the body.

[34] This is observed in case of localised disease manifestation.

- Burning sensation
- Severe pain on touching the site of the swelling
- Redness of the eyes
- Rapid development of pus formation and rapid appearance of burning sensation of the site of the swelling

## Kaphaja Shotha

गुरुः स्थिरः पाण्डुररोचकान्वितः प्रसेकनिद्रावमिवह्निमान्द्यकृत्।
सकृच्छ्रजन्मप्रशमो निपीडितो न चोमेद्रात्रिबला कफात्मकः॥14॥

Ca.Ci. – 12/14

- Heaviness of the swollen part of the body
- Firm swelling of the affected part
- Yellowish white discolouration
- Tastelessness
- Excessive salivation
- Excess sleep
- Vomiting
- Reduced digestive fire
- Slow pitting type of oedema i.e. slow disappearance of pitting of the oedematous part when we perform the test of pitting on pressure.
- Worsening of the symptoms during night time

## Clinical manifestation and site of the lesion as per Madhava Nidana

दोषाः श्वयथुमूर्ध्वं हि कुर्वन्त्यामाशयस्थिताः॥15॥
पकाशयस्था मध्ये तु वर्चः स्थानगतास्त्वधः।
कृत्स्नदेहमनुप्राप्ताः कुर्युः सर्वसरं तथा॥16॥ Ma.Ni. – Shotha/15-16

- *Dosha* situated in the *Amashaya* responsible for the manifestation of *Shotha* in the upper part of the body.
- *Dosha* present in the area between *Amashaya* and *Pakvashaya* lead to the occurrence of *Shotha* in middle part of the body.
- *Dosha* located in the *Pakvashaya* will lead to the appearance of *Shotha* in the lower part of the body.

## Sukhasadhya Lakshana of Shotha

The following *Lakshana* are considered as considered to be having good prognosis in *Shotha*. They are

अहीनमांसस्य य एकदोषजो नवो बलस्थस्य सुखः स साधने।

Ca.Ci. – 12/16

- When the person is not having *Mamsa Kshaya*
- When one *Dosha* is involved in the manifestation of *Shotha*
- If the duration of illness is short or disease is of recent origin
- If the *Rogibala* (strength of the patient) is more than *Rogabala* (strength of disease)

## Asadhya Lakshana of Shoth

The following *Lakshna* are considered to be having poor prognosis as far as *Shotha* is concerned. They are

यो मध्यदेशे श्वयथुः ख कष्टः सर्वगस्य यः।
अर्धाङ्गे रिष्टभूतः स्यायश्चोर्ध्वं परिसर्पति॥17॥
श्वासः पिपासा उर्दिध दीर्घत्वं ज्वर एव च।
यस्य चान्ने रुचिर्नास्ति श्वयथुं तं विवर्जयेत्॥18॥
अनन्योपद्रवकृतः शोथः पादसमुत्थितः।
पुरुष हन्ति नारी च मुखजो गुजो द्वयम्।
नवोऽनुपद्रथः शोथः साध्योऽसाध्यः पुरेरितः॥19॥
विवर्जयेत्कुश्युद्राश्रितं च तथा गले मर्मणि संधितं च।
स्थूलः सरब्धापि भवेद्धियज्योंयचापि बालस्थविराबलानां॥20॥

Ma.Ni. – Shotha/17-20

कृशस्य रोगैरवस्य यो भवे परिस्त्रवेदीनवलस्य सर्वगः॥15॥

Ca. Ci. - 12/15

कृशस्य रोगैरबलस्य यो भवेदुपद्रवैर्वा वमिपूर्वकैर्युतः।
सहन्ति मर्मानुगतोऽथ राजिमान् परिस्त्रवेद्धीनबलस्य सर्वगः॥15॥

Ca.Ci. – 12/15

- If the *Shotha* is present in the middle part of the body[35] (thorax and abdomen)
- If *Shotha* is present all over the body[36]
- If half of the body[37] is having *Shotha* is observed in the patient
- In males[38], the swelling spreading from feet to upper part[39] of the body and[40]

---

[35] This term refers to the presence of pleural or pericardial effusion or large ascites. When a clinician observes the swelling in the abdomen, it indicates either hepatic oedema. This may occur as a result of either alcoholic liver disease or any intraabdominal malignancy.

[36] Presence of swelling all over the body is termed as anasarca or dropsy. This is seen in the patients of serious cardiac compromise (cardiac oedema), chronic renal failure (renal oedema), hypoproteinemia.
It can also be considered as Sannipataja Shotha.

[37] Swelling in half of the body observed in the persons who are suffering from Pakshaghata or cerebro vascular accident. This is considered to be due to poor mobility of the limbs.

[38] यस्तु पादाभिनिर्वृत्तः शोथः सर्वाङ्गो भवेत्। जन्तोः स च सुकष्टः स्यात् प्रसृतः स्त्रीमुखाश्च यः 16
यधपि गुह्यप्रभयः स्त्रिया या पुरुषस्य वा। सच कतमो ज्ञेयो यख च स्युरुपद्रयाः॥17॥ Ca.Su. – 18/16,17

[39] This is attributable to the severe progression of the disease. This type of clinical presentation is seen in the progressive cardiac failure. Initial manifestation is considered to be dependant oedema and the progression of the swelling in the patient can be attributable to hypoproteinemia.

[40] When you soeak about the appearance of swelling from feet to upper part of the body, the parts of the body to be examined are feet,

- In females, if the swelling spreads from face to the lower part[41] of the body.
- In males and females, if the swelling starts from genitals[42], then such type of *Shotha* is having poor prognosis.
- If it is associated with breathing discomfort[43], thirst[44], vomiting, weakness, raised body temperature, loss of taste.
- If *Shotha* is associated with other *Upadrava*[45] (complication)
- If *Shotha* is associated with other *Upadrava*[46] (complication)
- If the *Shotha* is involving abdomen[47], throat[48] and vital points (*Marma*)[49], if the *Shotha* is large and having rough[50] appearance
- If the swelling[51] is present in children, elderly people and weak individuals

## Key points of the chapter

सर्वमुत्सेधं शोफमित्याहु Atanka Darpana, Ma.Ni. – 36/1,2. As per the commentary Atanka Darpana, any kind of the swelling manifested in any part of the body is termed as Shotha or Shopha.

- Shotha occurs in between Tvak and Mamsa Dhatu.
- It can occur in one Avayava (localised) or Dehardha (half of the body) or Sarvasharira (generalized).
- As far as Sankhya Samprapti of Shotha is concerned, Shotha is of 9 types:
- Vataja, Pittaja, Kaphaja, Vatapittaja, Vatakaphaja, Pittakaphaja, Sannipataja, Abhighataja and Vishaja.
- Divabali (worsening of the symptoms in day time) is the specific feature of Vataja Shotha and Ratribali (worsening of the symptoms in night time) is the specific feature of Kaphaja Shotha.
- As far as the manifestation of Shotha is concerned, there will be excess accumulation of fluid in one part of the body or whole body.
- This is especially seen in the individual who are suffering from expanded interstitial compartment.

---

abdomen, chest, orbital region. Analysis of cardiac dysfunction can be done on assessment of oedema of feet; swelling in the abdominal region suggests the presence of hepatobiliary dysfunction; presence of pulmonary oedema implies the compromise of respiratory as well as cardiac dysfunction; oedema in the periorbital region implies abnormal renal function. In females, the analysis should be done in the similar fashion.

[41] This is attributable to severe progression of the disease. This type of clinical presentation can be seen in the chronic renal failure. Usually the person with renal failure will be presented with periorbital oedema in early morning time and later he will be presented with generalised oedema due to hypoproteinemia.

[42] When the person is having swelling arising from genitals, the earlier clinical manifestation can be observed in absence of micturition i.e. anuria. If urine output of one kidney is diminished, the other kidney is taking charge of the function of affected kidney. If there is urethral obstruction or bilateral ureteric obstruction, that will be leading to the manifestation of hydroureter and hydronephrosis. This will lead to the manifestation of uremia. This results in the manifestation of oedema secondary to sodium and water retention.

[43] Breathing discomfort can be seen in conditions where there is excess accumulation of fluid in peritoneal cavity which leads to compression of diaphragm upwards or there is accumulation of fluid in alveoli which leads to the compromise in respiratory function or inflammatory reaction happening in either upper or lower respiratory passages where we can see inflammatory oedema in the affected part.

[44] The presence of thirst indicates condensed intracellular or interstitial or intravascular compartment. This is observed as a sequel of any of the infection occurring in any part of the body. As far as Shotha is concerned, there will be redistribution of the fluid in oedematous part leading to the accumulation of fluid in affected part and shrunken interstitial compartment in other parts. This leads to the manifestation of thirst commonly.

[45] छर्दिः श्वासोऽरुचिस्तृष्णा ज्वरोऽतीसार एव च। सप्तकोऽयं सदौर्बल्यः शोफोपद्रवसंग्रहः॥18॥ Ca.Su. – 18/18
Vomiting, breathlessness, tastelessness, thirst, fever, diarrhoea, weakness are Upadrava of Shotha as per Charaka

[46] छर्दिः श्वासोऽरुचिस्तृष्णा ज्वरोऽतीसार एव च। सप्तकोऽयं सदौर्बल्यः शोफोपद्रवसंग्रहः॥18॥ Ca.Su. – 18/18
Vomiting, breathlessness, tastelessness, thirst, fever, diarrhoea, weakness are Upadrava of Shotha as per Charaka

[47] The generalised swelling observed in the abdominal region is termed as ascites. As per western medicine, this is nothing but oedema in the serous cavity.

[48] Acute angioedema is usually developed in this particular region. This is anaphylaxis reaction which is usually seen in the patients of urticaria. This is characterised by locally diffuse and painful soft tissue swelling which is usually asymmetric. In the case of involvement of tongue etc, the person will have respiratory distress and stridor which should be treated as emergency.

[49] To understand this concept, refer the pathophysiology observed in case of Agantuja Shotha.

[50] Rough appearance of the swelling indicates the chronicity of the swelling or Shotha. For example, in case of elephantiasis, we can observe the rough skin like skin of an elephant.

[51] The swelling in these age groups can be observed in protein malabsorption either in children, eleders and weak individuals. In this situation, there will excess presence of fluid in interstitial compartment than intravascular compartment. The nature of oedema is slow pitting type of oedema i.e. disappearance of oedema can occur after 60 seconds.

## Long essays

- Explain Nidana Panchaka of Shotha
- Describe Nidana, Purvarupa, Samanya Lakshana, Vidhi Samprapti, Asadhya Lakshana and Sadhyasadhyata of Shotha

## Short essays

- Explain the Lakshana of Vataja Shotha
- Explain the Lakshana of Kaphaja Shotha
- Explain in brief about the types of Shotha.

## MCQs

1. **Ratribali is the specific feature of ................ Shotha.**

   a. Vataja; b. Kaphaja;
   c. Pittaja; d. Sannipataja

*Answer*: (b)

2. **Sankhya Samprapti of Shotha as per Madhava Nidana is**

   a. 4 types; b. 7 types;
   c. 9 types; d. 12 types

*Answer*: (c)

3. **Davathu or burning sensation in the affected part is considered as ............of Shotha.**

   a. Upadrava; b. Purvarupa;
   c. Nidana; d. Samprapti

*Answer*: (b)

4. **Sarva, Ardhanga and Avayava are the types of**

   a. Raktapitta; b. Amlapitta;
   c. Shitapitta; d. Shotha

*Answer*: (d)

5. **Abhighataja is the type of**

   a. Shotha; b. Apasmara;
   c. Grahani; d. Kasa

*Answer*: (a)

6. **The earliest sign observed in the patient of alcoholic liver disease is**

   a. Bilateral pedal oedema;
   b. Periorbital oedema;
   c. Ascites;
   d. Cough with pink frothy sputum

*Answer*: (c)

7. **The presence of pitting type of oedema in both feet indicates**

   a. Renal oedema;
   b. Hepatic oedema;
   c. Brawny oedema;
   d. Cardiac oedema

*Answer*: (d)

8. **The approximate number of capillaries in adult human body is**

   a. 10 million;
   b. 10 billion;
   c. 10 trillion;
   d. 100,000 capillaries

*Answer*: (b)

9. **Cough with pink frothy sputum indicates the dysfunction of**

   a. Kidney;
   b. Liver;
   c. Heart;
   d. Hypoproteinemia

*Answer*: (c)

10. **The term Divabali refers to**

   a. Aggravation of the symptoms in day time;
   b. Relief of the symptoms in day time;
   c. Relief of the symptoms in night time;
   d. Aggravation of the symptoms in night time.

*Answer*: (a)

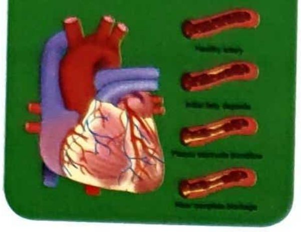
## Chapter resources

- https://yamunapharmacy.com/edema-or-oedema
- Madhava Nidana – 36th chapter Shotha Nidana
- Charaka Samhita Sutra Sthana 18th chapter – Trishothiya Adhyaya
- Charaka Samhita Chikitsa Sthana 12th chapter – Shotha Chikitsa Adhyaya
- Sushruta Samhita, Chikitsa Sthana 23rd chapter
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

25



# Cardiovascular Disorders

**Learning Objectives**

- ➩ To have a overall review of cardiovascular diseases
- ➩ To know about the clinical features of coronary artery disease (CAD including IHD and MI) and congestive cardiac failure (CCF)
- ➩ To know about the necessary physical examinations to be performed in the above said diseases
- ➩ To know about the laboratory investigations to be ordered in above said diseases and interpretations of the investigations

## Introduction

General symptoms of cardiac disease should be studied very carefully, as the gravity of the problem of any individual depends on the general condition of the patient. Many of the symptoms manifested due to the cardiovascular dysfunction will show symptoms of other systemic dysfunction, that is the reason the clinician has to be very careful in diagnosing the cardiac disease.

- In the investigation of the cardiac disease, the various methods have roughly the following relative values: history 40%, physical examination 25%, electrocardiography 20%, radiography 10% and pathological and other special methods of diagnosis 5%. In other words, 65% of the cases of cardiac disease can be accurately diagnosed by eliciting the history and methodical physical examination.
- Cardinal principle useful in evaluation of suspected heart disease – myocardial/ coronary function may be adequate at rest but inadequate during activity, but reverse mechanism is rare in organic heart disease.
- Symptoms caused by heart disease result most commonly from
- Myocardial ischemia – chest discomfort which can manifest due to mismatch between the supply and demand of oxygen to the myocardium
- Disturbance in contraction/ relaxation of myocardium (reduced pumping activity) – weakness, fatiguability associated with cyanosis, hypotension, syncope, increased intravascular pressure behind failing ventricle
- Obstruction to blood flow (abnormal fluid accumulation – dyspnoea, orthopnoea, systemic/ pulmonary oedema, CCF
- Arrhythmias (occurs abruptly, disappears rapidly) – palpitation, angina, dyspnoea, hypotension, syncope
- Complete diagnosis of cardiac disease:
- Underlying etiology – congenital, infectious, hypertensive, ischemic in origin
- Anatomic abnormalities – chambers involved? Which valves affected? Is there pericardial involvement? Has there been an MI?
- Physiological disturbances – is arrhythmia present? Is there evidence of CCF, IHD?
- Extent of functional disability – how strenuous the exercise should be to elicit the symptoms?
- The recognition of ischemia is not sufficient to plan therapeutic strategy as there can be AS, coronary atherosclerosis, severe anemia or thyrotoxicosis
- As far as symptoms of cardiac disease are concerned, the person may have varying degrees of breathlessness (breathlessness on exertion, paroxysmal nocturnal dyspnoea, orthopnoea, dyspnoea at rest), chest discomfort, cough with pink frothy sputum, pain in the right upper quadrant, bilateral pedal oedema, loss of appetite, nausea or vomiting, fullness of the abdomen; syncope, oliguria and nocturia.
- As far as disease of blood vessels are concerned, the person may have pain in the lower limb with intermittent claudication, blackish discolouration

of the lower limb, shininess of the skin, loss of body hairs where reduced blood supply is observed.

- As far as physical examination is concerned, it can be further categorized into general and systemic examination. General examination includes assessment of blood pressure; assessment of peripheral arterial pulsation; pedal oedema; assessment of jugular venous pulsation on the right side.
- Systemic examination include inspection, palpation and auscultation of chest in the cardiac assessment. Laboratory examinations include CBC, ESR, electrocardiogram (ECG), chest x ray, echocardiogram, tread mill test (TMT), assessment of cardiac enzyme markers and invasive technique such as cardiac catheterization.
- In the following pages, we are going to discuss coronary artery disease; ischaemic heart disease and myocardial infarction and congestive cardiac failure.

## Coronary Artery Disease, IHD & MI

Coronary arteries are of two in number, right and left which arise from the right and left coronary sinuses in the root of aorta just above the aortic valve orifice. Coronary Artery Disease **(see Figure 68)** (CAD) involves impairment of blood flow through coronary arteries, most commonly by atheromas.

Clinical presentations include silent ischemia, angina pectoris, acute coronary syndromes (unstable angina and myocardial infarction) and sudden cardiac death. Diagnosis is done by symptoms, ECG, tread mill test (stress testing i.e. TMT) and sometimes by coronary angiogram.

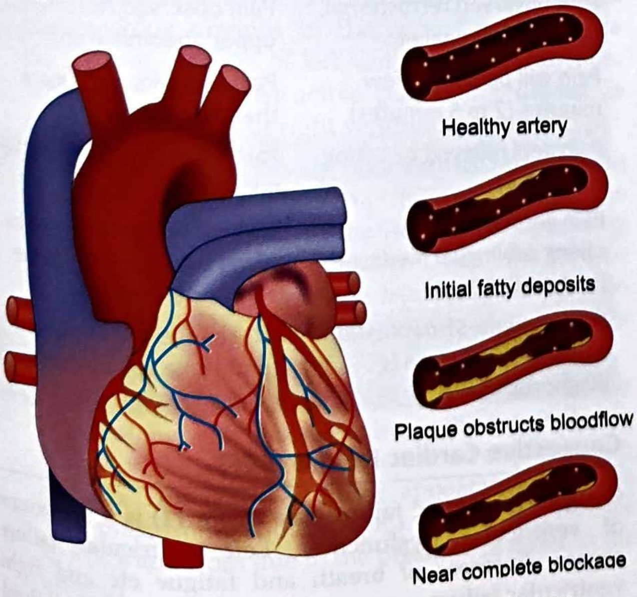


**Figure 68:** Mechanism of coronary artery disease

- Coronary Artery Disease (CAD) is 3rd most common cause of deaths among all causes of death. This is more commonly seen in males in between the ages of 25 to 34 years; this is commonly seen in women after menopausal age; and after age of 75 years, this is seen equally in both genders. Angina pectoris is a form of CAD.
- CAD is due to the deposition of atheromas in subintimal layer of coronary arteries. Less often, coronary spasm is the reason for CAD in very cold environment. Rare causes of CAD are coronary artery embolism; dissecting aortic aneurysm; conditions which cause tachycardia.
- Coronary atherosclerosis is often irregularly distributed in different vessels, but typically occurs at points of turbulence (vessel bifurications). As atheromatous plaque grows, the arterial lumen progressively narrows, resulting in ischemia. The degree of ischemia happening in the patient leads to the manifestation of acute coronary syndromes which may vary from trivial stable angina to severe myocardial infarction.
- Coronary artery spasm is a transient, focal increase in vascular tone, markedly narrowing the lumen and reducing the blood flow, typically occurring in cold environment.
- Risk factors for the development of CAD are high blood levels of low density lipoproteins (LDL); diabetes mellitus, smoking, obesity, physical inactivity.
- Diagnosis is done by lipid profile test, coronary angiogram.

## Ischaemic Heart Disease & Myocardial Infarction

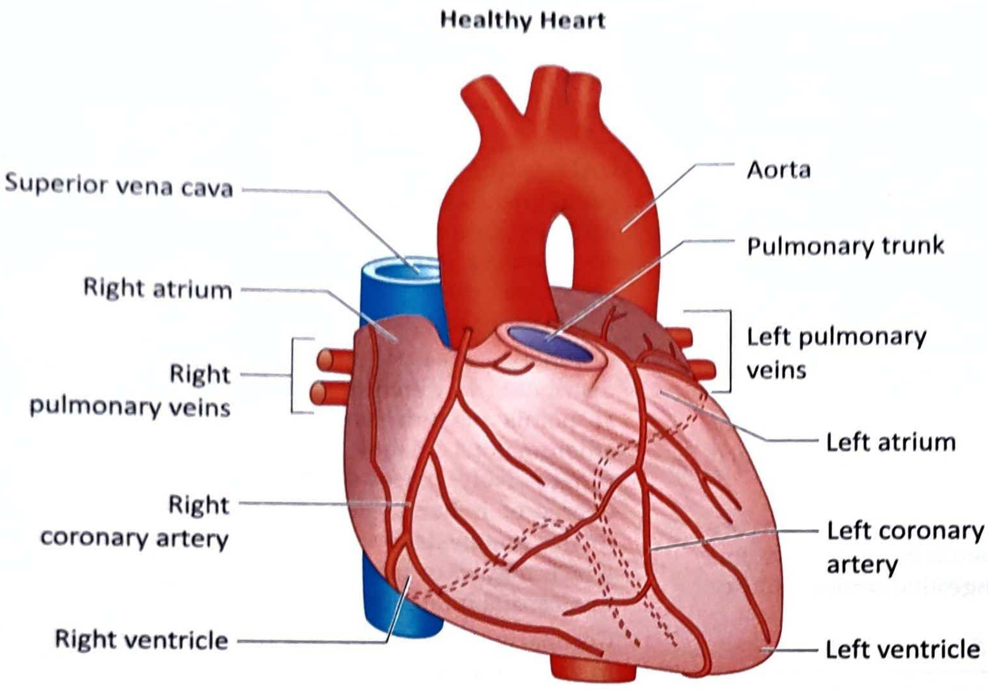
These two conditions are categorized under acute coronary syndromes where in the patient may complain of chest discomfort in the form of heaviness of the chest or pain which may radiate from retrosternal region to left shoulder, sometimes even upto the left finger.

The pain may also radiate to right shoulder, sometimes even to the neck and upper abdomen.

This may worsen while performing physical activity, usually aggravates on climbing stairs or by performing exercise or by emotional stress or by consumption of heavy meals or by exposure to cold environment and gets relieved by taking either rest or by taking sublingual medicine (sorbitrate 10 mg).

The chest discomfort will be relieved within minutes in case of IHD **(see Figure 69)** and in case of myocardial infarction **(see Figure 70)**, the pain may be observed for more than 30 minutes.

This may be associated with breathlessness and sweating in the forehead region. If the person is having chest discomfort and it disappears in the patient within seconds, then it should imply that the pain observed in the patient is not of cardiac origin.


Healthy Heart
Superior vena cava
Right atrium
Right pulmonary veins
Right coronary artery
Right ventricle
Aorta
Pulmonary trunk
Left pulmonary veins
Left atrium
Left coronary artery
Left ventricle

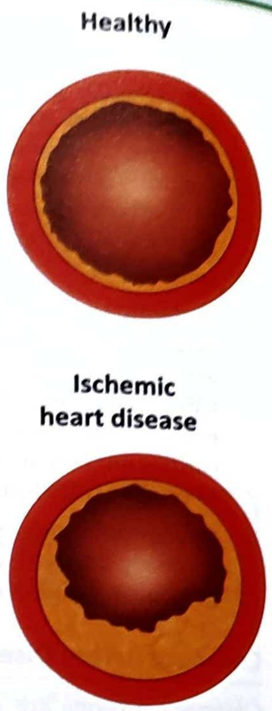

Healthy
Ischemic heart disease

**Figure 69:** Mechanism of coronary artery disease: cross sectional view of vessel

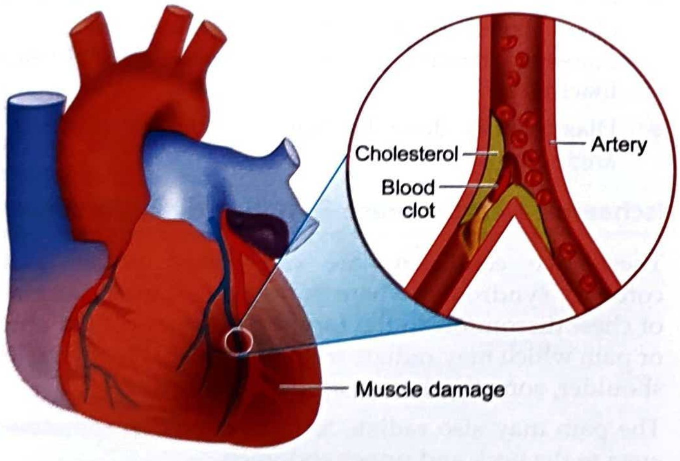

Cholesterol
Blood clot
Artery
Muscle damage

**Figure 70:** Mechanism of myocardial infarction

- Most common cause of IHD and MI is CAD. The risk factors for the development of these diseases is similar to the risk factors of the development of CAD. Depending upon the duration of the symptoms, IHD is further classified into angina pectoris (where the chest pain gets relieved within 10 minutes. If the person is having pain which persists for few minutes and gets relieved by taking rest or sublingual medicine, then such type of chest discomfort is termed as angina pectoris; and if the pain will persist for more than 10 minutes and less than 30 minutes, such type of chest discomfort is termed as manifested due to myocardial infarction.
- The nature of chest discomfort, location, radiation, character, severity, aggravating and relieving factors of CAD is observed in the patients of ischemic heart disease and myocardial infarction. Hence physical examination findings of CAD is also similar to the description of IHD, MI.
- Diagnosis is done by CBC, ECG, echocardiogram, TMT, enzymatic assessment of cardiac enzymes.

**The differences between IHD and MI:**

| Ischemic heart disease | Myocardial infarction |
|---|---|
| Pain observed retrosternal, upper abdominal etc | Pain observed retrosternal, upper abdominal etc |
| Pain will persist for few minutes (2 to 5 minutes) | Pain will persist for more than 30 minutes |
| Pain gets relieved by taking rest | Pain will not get relieved by taking rest |
| Pain gets relieved by taking sublingual medicine (sorbitrate 10 mg) | Pain will not get relieved by taking sublingual medicine (sorbitrate 10 mg) |
| ECG changes: ST depression and inverted T wave is diagnostic of IHD | ECG changes: ST elevation (tombstone appearance) and upright T wave |

## Congestive Cardiac Failure (CCF)

Congestive cardiac failure **(see Figure 71)** is a syndrome of ventricular dysfunction. Left ventricular failure causes shortness of breath and fatigue etc and right ventricular failure causes peripheral and abdominal fluid accumulation; the ventricles can be involved together or separately. Diagnosis is initially clinical, supported by chest x ray, echocardiography.

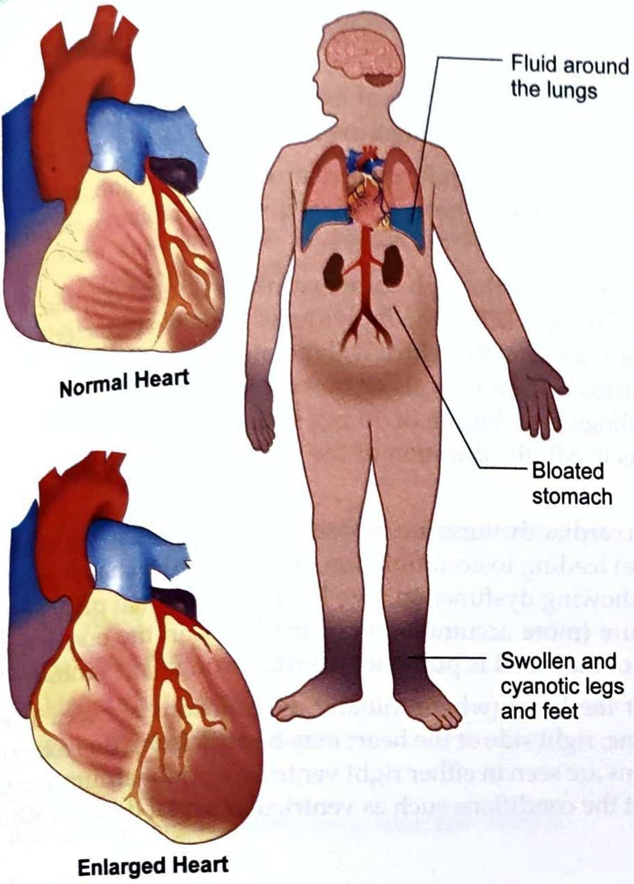


**Figure 71:** Clinical features of congestive cardiac failure (CCF)

- The term congestion refers to accumulation of some amount of blood in either one or two or three or all four chambers of the heart. Depending upon the nature of pathogenesis, two types of pathogenesis may occur: forward failure and backward failure.
- Aortic stenosis, aortic regurgitation, presence of atheromatous plaques in the ascending aorta are the initiating factors of left ventricular dysfunction. Whereas chronic obstructive pulmonary disease is the initiating factor of right ventricular dysfunction.
- When the person is having poor cardiac output from the left ventricle to the aorta, this may lead to the backflow of the blood to the left ventricle, leading to the congestion of left ventricle. Due to the chronic congestion in the left ventricle, leads to the congestion of left atrium and later congestion of pulmonary capillaries.
- There will be transport of RBCs, fluid etc into the alveoli along with gases, leading to the accumulation of fluid in the alveoli, which is termed as pulmonary oedema. This will lead to the appearance of cough with pink, frothy sputum. (pink due to the presence of RBCs and froth due to the presence of gases in the alveoli).
- When there is backflow of the blood from pulmonary capillaries, excess blood enters into right ventricle via pulmonary artery leading to the congestion of right ventricle and this in turn leads to the congestion of right atrium and later the blood may move into superior vena cava and inferior vena cava.
- The backflow of the blood in the superior vena cava is identified by analysing the assessment of right jugular vein.
- The backflow of blood in the inferior vena cava can be identifiable by assessment of pain in right upper quadrant and bilateral pedal oedema which occurs as a result of backflow of blood into hepatic veins and inferior vena cava respectively.

When there is backflow of blood leads to the portal hypertension where excess blood move into superior mesenteric vein and splenic vein leading to the backflow of the blood into stomach, small intestine leading to the manifestation of loss of appetite, nausea or vomiting.

- When there is poor forward flow of blood, less amount of blood will move from the left ventricle into aorta. This will lead to poor blood flow into the different body parts of the body.
- Syncope is one such type of symptom which occurs due to poor blood supply to the brain, where the person may have altered state of consciousness which may be observed when the person is upright posture and this may be relieved by making the person to lie in supine posture and loosening the clothes around the neck to facilitate adequate amount of blood supply to the brain.
- Oliguria and nocturia are also observed which occurs due to the poor blood supply to the renal arteries in the day time and increased blood supply to the renal arteries in night time.
- As already stated in the introduction, general and systemic examinations are of great value in the diagnosis of congestive cardiac failure. General examination helps in the detection of visible jugular venous pulse (JVP) on the right side, bilateral pedal oedema specifically seen in evening time, central or peripheral cyanosis in the tongue, fingers, tip of nose, ear pinna (due to circulatory failure, accumulation of deoxygenated blood in the peripheral vessels), clubbing (due to poor circulation).
- Systemic examination helps in the detection of mediastinal shift (shift of apical impulse to the left side); bilateral basal crepitations on auscultation (pulmonary oedema); tender hepatomegaly (due to backflow of blood to hepatic veins); detection of ascites (due to portal hypertension).
- Diagnosis is done by clinical evaluation, chest x ray, ECG, echocardiogram.
- As far as prognosis is concerned, generally patients with heart failure have poor prognosis unless the cause is correctable.

### Key summary of the chapter

- Many of the symptoms manifested due to cardiovascular dysfunction will show symptoms of other systemic dysfunction.
- While investigating cardiac disease, history plays in 40% of the cases, physical examination in 25% of the cases, electrocardiography in 20%, radiography in 10% and special methods of diagnosis in another 5% of the cases.
- Symptoms of cardiac disease will manifest because of myocardial ischemia; disturbance in contraction/ relaxation of myocardium; obstruction to the blood flow and arrhythmias. These are 4 major mechanisms of cardiac pathogenesis.
- Coronary artery disease (CAD) involves impairment of blood flow through coronary arteries, most commonly by atheromas. CAD is the major cause of manifestation of IHD and MI in the individuals. This is characterized by retrosternal chest discomfort in the form of heaviness of the chest usually, which will radiate to the left shoulder even upto the left fingers; worsens on exercise or emotional stress or heavy meals or by exposure to cold environment and gets relieved by either taking rest or by taking sublingual sorbitrate of 10 mg strength. In case of IHD, the duration of pain will be between 2 to 5 minutes; whereas in MI, the duration of the pain is > 30 minutes and will not respond to rest or by sublingual sorbitrate 10 mg.
- Congestive cardiac failure (CCF) is the condition where in cardiac dysfunction is observed in the patient with failure of the chamber of the heart (usually left or right ventricle) leading to accumulation of blood in the chamber of the heart, which is termed as congestion. When ventricle is showing dysfunction, two kinds of abnormal pathological mechanisms can be seen in the body i.e. backward failure (more accumulation of the blood in the one or more chambers of the heart) and forward failure (less amount of the blood is pumped to aorta through left ventricle.
- Congestive cardiac failure can also occur in left side of the heart (where initially dysfunctions are seen in left ventricle or left atrium or both, where in due course of time, right side of the heart may be afflicted in due course of time) or right side of the heart (where initially dysfunctions are seen in either right ventricle or right atrium or both, but left side of the heart will be less likely afflicted except the conditions such as ventricular septal defect (VSD) or atrial septal defect (ASD).

### Self-Assessment: Questions for Reviews

### Short essay questions

- Explain coronary artery disease
- Describe IHD and MI and write the differences between the two
- Explain congestive cardiac failure (CCF)

### MCQs

**1. Jugular venous pulse is ............finding.**

a. Inspection; b. Palpation;
c. Percussion; d. Auscultation

*Answer*: (a)

**2. Visible jugular venous pulse will indicate the following except**

a. Superior vena caval obstruction;
b. Right atrial failure;
c. Right ventricular failure;
d. None of the above

*Answer*: (d)

**3. The duration of pain in the patient of myocardial infarction observed usually will be**

a. > 15 minutes;
b. > 5 minutes;
c. > 10 minutes;
d. > 30 minutes

*Answer*: (d)

**4. Cough with pink frothy sputum is indicative of which of the following?**

a. Right atrial failure;
b. Right ventricular failure;
c. Both right atrial and ventricular failure;
d. Left atrial failure

*Answer*: (d)

**5. Cor pulmonale is the condition which leads to the affliction of**

a. Right atrium;
b. Right ventricle;
c. Right atrium and Right ventricle;
d. Left ventricle

*Answer*: (c)

**6. Which of the following is not an example of forward failure?**

a. Pain in right upper quadrant;
b. Syncope;
c. Oliguria;
d. Nocturia

*Answer*: (a)

**7. Which of the following is an example of forward failure?**

a. Cough with pink frothy sputum;

b. Nausea;

c. Visible JVP;

d. Syncope

*Answer*: (d)

**8. Tombstone appearance of ST segment with upright T wave in ECG is indicative of**

a. IHD;

b. Angina pectoris;

c. Acute MI;

d. CCF

*Answer*: (c)

**9. Which of the following is an example of congenital heart disease?**

a. Coronary artery disease;

b. Ischemic heart disease;

c. Myocardial infarction;

d. Fallot's tetralogy of heart

*Answer*: (d)

**10. In congestive cardiac failure, congestion can occur in**

a. Left ventricle;

b. Right ventricle;

c. Right atrium or left atrium;

d. Any one or two or three or all chambers

*Answer*: (d)

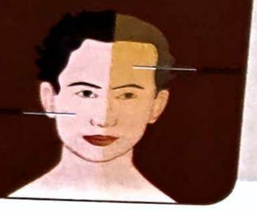
### Chapter resources

- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Textbook on Clinical biochemistry and haematology with clinical concepts by Naveen Chandra N H, 1st edition, published by the author, 2013.
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.longmoreclinic.org for image of coronary artery disease
- www.medexpert.sg for image of IHD
- www.medicoverhospitals.in for image of MI
- https://my.clevelandclinic.org/health/diseases/17069-heart-failure-understanding-heart-failure

***

CHAPTER

26



# Kamala

**Learning Objectives**

- To learn the concept of Kamala
- To learn the Nidana and Samprapti of Kamala in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To make the classification of Kamala based on Vidhi Samprapti
- To learn the differences between Koshthashakhashrita and Shakhashrita Kamala
- To enlist the Upadrava of Kamala
- To learn the differences between Svatantra, Paratantra; and Alpapitta and Bahupitta Kamala

## Introduction

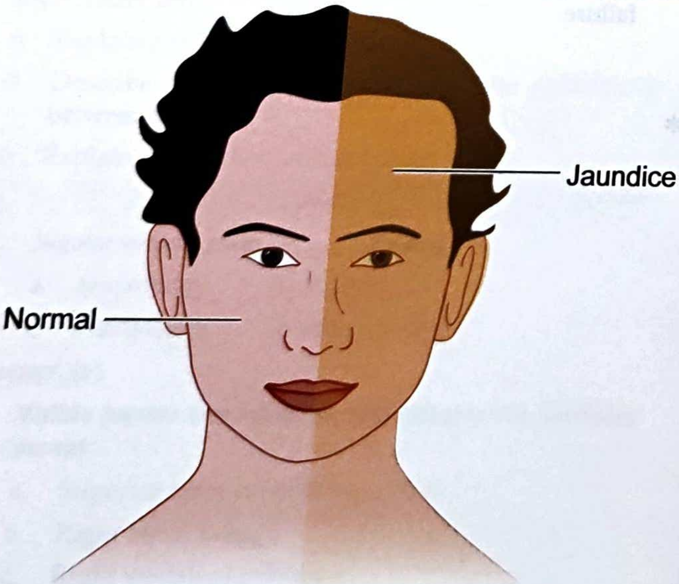


**Figure 72:** Image of patient of normal and jaundiced individuals

*Kamala* is *Pitta* dominant disease where *Rakta Dhatu Kshaya* (decrease of *Rakta Dhatu*) is seen. As per *Charaka*, it is abnormal *Rakta* responsible for the manifestation of *Kamala*. This is associated with yellowish discolouration of different body parts. *Kamala* is said to be leading to the involvement of *Raktavaha Srotas*, as *Yakrit* and *Pliha* are considered to be the *Srotomula* of *Raktavaha Srotas*. *Charaka* says two types of *Kamala* – *Shakhashrita Kamala* and *Koshthashakhashrita Kamala*. *Kumbhakamala, Halimaka, Panaki* are different stages of *Kamala* itself.

## Nidana and Samprapti of Koshtha Shakhashrita Kamala

पाण्डुरोगी तु योऽत्यर्थं पित्तलानि निषेवते।
तस्य पित्तमसृग्मांसं दग्ध्वा रोगाय कल्पते॥34॥
हारिद्रनेत्रः स भृशं हारिद्रत्वङ्नखाननः।
रक्तपीतशकृन्मूत्र मेकवर्णो हतेन्द्रियः॥35॥
दाहाविपाकदौर्बल्य सद्नारुचिकर्षितः।
कामला बहुपित्तैषा कोष्ठशाखाश्रया मता॥36॥ Ca.Ci. – 16/34-36

- A person suffering from disease *Pandu* is continuously consuming *Pitta* vitiating diet[1]

---

GK

[1] When chyme is entering the small intestine, they move further to the distal part of intestine at a velocity of 0.5 to 2 cm/ second. The movement is faster at proximal intestine and slower at the distal intestine. Normally, peristaltic movements die out after travelling 3 to 5 cms, very rarely farther than 10 cm, so that forward movement of chyme is very slow which averages about 1cm/ second.

- When the chyme enters the small intestine, that will be responsible for the secretion of cholecystokinin from mucosal cells of small intestine and this is stimulating the secretions of liver and pancreas.
- Liver cells synthesise about 6 gms of bile salts daily. Bile salts reach duodenum along with biliary secretion. About 94% of the bile salts

- *Pitta* vitiation occurs inside the person, this vitiated *Pitta* will burn the *Rakta* (blood) and *Mamsa* (flesh)[2] and manifests *Kamala*.
- This is associated with yellowish discolouration of eyes, skin, nails and mouth[3].
- This may also be associated with reddish yellow discolouration of urine, faeces.[4]
- The skin may resemble the colour of frog of rainy season[5].

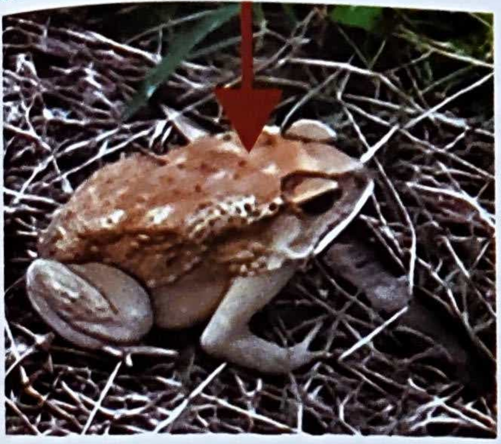
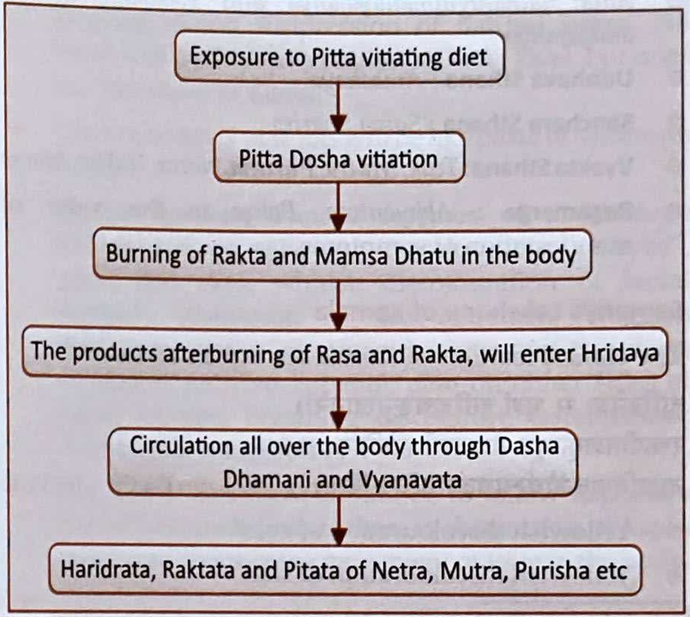


**Figure 73:** The colour of Bheka Varna (colour of frog of rainy season)

- The all *Indriya* of a suffering individual will lose their function[6].
- This may also be associated with burning sensation, indigestion, weakness, sluggish movement of body parts, tastelessness and emaciation[7].
- This is manifested due to excess vitiation of *Pitta Dosha* in the body. This vitiated *Pitta* may be observed in *Koshtha* or *Shakha*.

## Samprapti of Kamala


Exposure to Pitta vitiating diet
Pitta Dosha vitiation
Burning of Rakta and Mamsa Dhatu in the body
The products afterburning of Rasa and Rakta, will enter Hridaya
Circulation all over the body through Dasha Dhamani and Vyanavata
Haridrata, Raktata and Pitata of Netra, Mutra, Purisha etc

---

are reabsorbed into blood from small intestine. About 47% of the bile salts absorbed through early portions of small intestine and another 47% of the bile salts are absorbed through ileum. These salts enter portal blood and reenter the liver and these bile salts enter again to the bile to be secreted into the duodenum. Thus, 94% of the bile salts undergo 17 times of enterohepatic circulation before entering into the faecal matter.

- When an individual consumes Tikshna (highly irritating substances such as green chilli or red chilli), this is responsible for the inflammation of the stomach, small intestine and increased peristaltic activity in the alimentary canal. This is responsible for the much rapid movement of substances in the small intestine. This increases the secretion of bile more than 1000 ml/ day due to the influence of cholecystokinin. Due to the increased peristaltic movements, more amount of bile will be excreted in the faecal matter leading to the more yellowish discolouration of faecal matter.

[2] While speaking about the pathogenesis of the Kamala, Rakta and Mamsa Dhatu affliction are observed. Here, the term Rakta Dhatu may be indicative of the destruction of blood cells resulting in the increased bilirubin and biliverdin formation, where as Mamsa Dhatu can be attributable to the involvement of gall bladder during the manifestation of the disease, not Mamsa Dhatu of all over the body.

[3] As far the progression of the disease, appearance of jaundice first seen in the blood, later it can be seen in urine, later the discolouration seen in tongue and conjunctiva and then in the skin uniformly.

[4] When there is free haemoglobin available in the circulating blood which may occur along with destruction of senescent RBCs, it can be transferred into the nephron easily leading to the reddish appearance of urine. In this occasion, yellowish appearance of urine sample indicates the presence of conjugated bilirubin in the urine.

Reddish appearance of faecal matter may indicate the bleeding occurring in the lower alimentary canal and as it is occurring in the lower alimentary canal, mixture of hydrochloric acid does not occur because of which there is no formation of acid haematin leading to dark tarry stool, the person may have reddish appearance of faecal matter. Yellowish appearance of faecal matter may indicate the presence of either inflammation of lower alimentary canal which leads to faster peristalsis or indicates hepatocellular jaundice or features of partial obstructive jaundice. in case of complete obstructive jaundice, the person may have whitish appearance of faecal matter due to the absence of bilirubin in the faecal matter.

[5]

[6] Indriya will function in a proper manner when they receive adequate amount of oxygen via RBCs. In an individual suffering from Kamala, the main pathological event is destruction of RBCs (either senescent or mature or immature RBCs depending upon the pathological process), thus one of the major function of RBC i.e. nourishing the Indriya (sense organs and organs of action) are hampered. Thus, he will have loss of functions of Indriyas.

[7] In this destruction, several descriptions are mentioned. Burning sensation is attributable to the deficiency of vitamin B12 which occurs because of poor absorption from alimentary canal. Indigestion, weakness, sluggish movement of body parts, tastelessness are attributable to the shift of the distribution of blood from the alimentary canal and musculo skeletal system to heart and brain, thereby he may get the above said symptoms. Emaciation is usually attributable to depletion of adipose tissue which manifests due to poor absorption of nutrients from the alimentary canal.

## Samprapti Ghataka

- **Dosha:** *Pitta Dosha*
- **Dushya:** *Rakta, Mamsa*
- **Srotas:** *Raktavaha* and *Mamsavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni:** *Jatharagnimandya* and *Rakta Dhatvagnimandya*
- **Ama:** *Jatharagnimandyajanya* and *Raktadhatvagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana:** *Tvak, Mutra, Purisha, Netra, Nakha, Anana*
- **Rogamarga :** *Abhyantara, Bahya* in the order of manifestation of symptoms

### Samanya Lakshana of Kamala

The clinical features of *Kamala* are explained below.

हारिद्रनेत्रः स भृशं हारिद्रत्वङ्नखाननः।
रक्तपीतशकृन्मूत्र मेकवर्णो हतेन्द्रियः॥35॥
दाहाविपाकदौर्बल्यसदनारुचिकर्षितः। Ca.Ci. – 16/35,36

- Yellowish discolouration of eyes[8]
- Yellowish discolouration of skin[9]
- Yellowish discolouration of nails
- Yellowish discolouration of mouth or buccal mucosa[10]
- Reddish[11] or yellowish discolouration of urine[12]
- Reddish or yellowish discolouration of faecal matter[13]
- Patient's skin resembles the colour of frog observed during rainy season
- Loss of function of all *Indriya*[14]
- Burning sensation of the body[15]
- Indigestion[16]
- Weakness[17]
- Sluggish movement of body parts[18]
- Tastelessness
- Emaciation[19]

## Types of Kamala

**Sankhya Samprapti of Kamala**2 types.

1. **Koshthashakhashrita Kamala (Bahupitta Kamala)**– *Svatantra* and *Paratantra Kamala*
2. **Shakhashrita Kamala (Alpapitta Kamala)**

Here, the term *Koshthashakhashrita Kamala* refers to the presence of vitiated *Pitta* in the *Koshtha* as well as

---

GK

[8] Yellowish discolouration of the eyes is seen in bulbar conjunctiva. This is seen in mucosa covering the sclera of the eye. This is observed after the yellowish discolouration of the ventral surface of the tongue.

[9] Yellowish discolouration of the skin is seen after the progression of the symptoms from blood, thence to tongue, and later to the sclera of the eye and at last uniform yellowish discolouration in the skin is observed. This usually manifests due to the excess accumulation of bile salts secondary to obstructive jaundice.

[10] As far as the involvement of buccal mucosa is concerned, abnormal discolouiration is first seen in ventral surface of the tongue.

[11] Reddish discolouration of the urine, eyes or faecal matter can be attributable to the hampered secretion of prothrombin which is continuously secreted by liver cells and lack of this factor can be responsible for bleeding from any part of the body.

[12] Yellowish discolouration of urine is observed after the elevation of bilirubin in the blood and enhanced conjugated bilirubin in the body. unconjugated bilirubin is not seen in the urine as it is water insoluble.

[13] Yellowish discolouration of faecal matter refers to the increased presence of bilirubin in the faecal matter. It indicates conjugated biliribuin in the faecal matter and patency of hepato biliary system which implies increased passage of bile from the hepato biliary tree to the duodenum.

[14] The term refers to loss of function of Jnanendriya and Karmendriya. This is attributable to the nature of the pathological event. For example, when you take the function of Payu (anus), the person will have steatorrhoea (which indicates the abnormal emulsification of fat). When you take the example of Chakshurindriya, the person will have yellowish appearance of the substances as the deposition of bilirubin is seen in the bulbar conjunctiva. It refers to the deposition of bilirubin is seen in conjunctiva covering cornea too, but discolouration is observed in sclera, as cornea is colourless.

[15] This can be attributable to the peripheral neuropathy and damages to the white matters of the brain and spinal cord. This is occurring as a result of vitamin B12 deficiency. It is being described in the textbook of physiology that vitamin B12 is stored in the liver and this will be stored to last for at least 1 year and may be several years. Thus in case of liver dysfunction along with abnormal bilirubin metabolism, we can observe vitamin B12 deficiency in due course of time.

[16] Indigestion is the symptom observed in obstructive jaundice. In this type of jaundice, due to the absence of bile secretion into the duodenum, the person will have fat dysmetabolism resulting in steatorrhoea. In due course of time, the person will have disturbances in absorption of fat soluble vitamins.

[17] Weakness is attributable to carbohydrate and fat dysmetabolism. In the person who is suffering from liver disease, glucose transported from alimentary canal cannot be converted into the glycogen and conversion of glucose to glycogen and vie versa is disturbed. When there is poor fat absorption, that will lead to poor adipose tissue formation. Adipose tissue is considered to be energy reservoir in case of carbohydrate depletion in the body. Because of the above two mechanisms, the person may have weakness.

[18] As there is nutrition deficiency that is of carbohydrates, fats and proteins, the person suffering from this illness may have sluggish movement of body parts.

[19] This can be attributable to the next stage of weakness. In this particular stage, due to the poor supply of carbohydrate, there will be depletion of adipose tissue takes place. The area where there will be deposition of adipose tissue is below the skin. Thus, continuous fat depletion from the body can have emaciation in due course of time.

*Shakha*. That is why, this type of *Kamala* is also termed as *Bahupitta Kamala*. The term *Shakhashrita Kamala* refers to the presence of vitiated *Pitta* in *Shakha* will be there. That is why, this type of *Kamala* is also termed as *Alpapitta Kamala*.

The term *Svatantra Kamala* refers to the manifestation of *Kamala* without the manifestation of *Pandu* who has the vitiation of *Pitta Dosha*. Whereas *Paratantra Kamala* refers to the manifestation of *Kamala* which occurs due to the primary manifestation of *Pandu*.

### 1. Koshthashakhashrita Kamala

**पाण्डुरोगी तु योऽत्यर्थं पित्तलानि निषेवते।**
**तस्य पित्तमसृङ्मांसं दग्ध्वा रोगाय कल्पते॥34॥**
**हारिद्रनेत्रः स भृशं हारिद्रत्वङ्नखाननः।**
**रक्तपीतशकृन्मूत्रो भेकवर्णो हतेन्द्रियः॥35॥**
**दाहाविपाकदौर्बल्यसदनारुचिकर्षितः।**
**कामला बहुपित्तैषा कोष्ठशाखाश्रया मता॥36॥** Ca.Ci. – 16/34-36

- This is also being termed as *Bahupitta Kamala*.
- *Pitta* vitiating diet is considered to be *Nidana* or etiological factor for this type of *Kamala*.
- First there will be *Pitta* vitiation, followed by affliction of *Rakta* and *Mamsa* involvement.
- **Clinical Features:** The clinical features of *Koshthashakhashrita Kamala*[20] are yellowish discolouration of eyes, skin, nails and oral cavity; reddish yellow discolouration of urine and faeces; the skin colour resembles the colour of skin of frog; loss of function of all *Indriya*, burning sensation, indigestion, weakness, sluggish movements of the body parts, tastelessness and emaciation.
- As this is *Bahupitta Kamala* i.e. the disease manifested due to maximum *Pitta* vitiation, this requires aggressive line of treatment.

### 2. Shakhashrita Kamala Lakshana

**तिलपिष्टनिभं यस्तु वर्चः सृजति कामली॥124॥**
**श्लेष्मणा रुद्धमार्गं तत् पित्तं कफहरैर्जयेत्।**
**रूक्षशीतगुरुस्वादुव्यायामैर्वेगनिग्रहैः॥125॥**
**कफसंमूर्च्छितो वायुः स्थानात् पित्तं क्षिपेद्बली।**
**हारिद्रनेत्रमूत्रत्वक् श्वेतवर्चास्तदा नरः॥126॥**
**भवेत् साटोपविष्टम्भो गुरुणा हृदयेन च।**
**दौर्बल्याल्पाग्निपार्श्वार्तिहिक्काश्वासारुचिज्वरैः॥127॥**
**क्रमेणाल्पेऽनुसज्येतं पित्ते शाखासमाश्रिते।** Ca.Ci. – 16/124-128

- The causative factors of *Shakhashrita Kamala* are excessive consumption of dry substances, cold substances, food substances heavy to digest, substances having sweet taste, soon after performing exercise; doing suppression of natural urges. All these will lead to the vitiation of *Vata Dosha*, but does the *Murchana* of *Kapha*.
- The consistency of stools will be like paste of sesamum seeds[21].
- **Clinical features:** Clinical features of *Shakhashrita Kamala* include yellowish discolouration of eyes[22], urine and skin; whitish discolouration of faecal matter[23]; distension of the abdomen; sluggish movement of the intestines; heaviness of the chest; weakness; reduced appetite; pain on either sides of chest; hiccups, breathing discomfort; tastelessness; raised body temperature[24].
- The line of treatment should be to follow *Kaphahara* line of treatment first, as there is obstruction of *Kapha* leading to obstruct the movement of *Pitta* in the body.

## Kumbha Kamala Lakshana

**कालान्तरात् खरीभूता कृच्छ्रा स्यात् कुम्भकामला।**
**कृष्णपीतशकृन्मूत्रो भृशं शूनश्च मानवः॥37॥**
**सरक्ताक्षिमुखच्छर्दिविण्मूत्रो यश्च ताम्यति।**
**दाहारुचितृषानाहतन्द्रामोहसमन्वितः॥38॥**
**नष्टाग्निसंज्ञः क्षिप्रं हि कामलावान् विपद्यते।**
Ca.Ci. – 16/37,38

- *Kumbhakamala* is the next stage of *Koshthashakhashrita Kamala*. The disease enters the chronic stage when the person not receiving any adequate line of treatment in *Koshthashakhashrita Kamala* stage.
- In this stage, the person is presented with blackish or blackish yellow discolouration of urine and faecal matter[25].
- Generalised swelling all over the body and abdomen[26]

---

[20] The description of Koshthashakhashrita Kamala is described earlier in the present chapter.

[21] The stool becomes clay coloured due to the lack of stercobilin and other bile pigments. This indicates either intrahepatic or extrahepatic obstruction.

[22] This indicates the dark yellowish discolouration of the eyes, urine and skin. This is observed due to the abnormal increase of conjugated bilirubin. As conjugated bilirubin is water soluble, this is observed in the urine. The person will also have dark yellowish tinge of the skin and this is associated with profuse itching secondary to deposition of bile salts in the skin.

[23] This is attributable for the absence of bile in the faecal matter which usually gives the yellowish colour to the faecal matter.

[24] These symptoms are attributable to the portal hypertension. Due to portal hypertension, the person can develop ascites, which can even stretch the diaphragm, ribs and posteriorly intestines. Thus, because of this pathological mechanism, the person may have distension of the abdomen, heaviness of the chest, reduced appetite and tastelessness, pain on sides of the chest, hiccups and breathlessness

[25] This is attributable to bleeding in the upper alimentary canal secondary to oesophageal varices. It is termed as malena (black tarry stool). At least 100-200 ml of blood in the upper gastrointestinal tract is required to have malena which may persist for several days after cessation of intraalimentary bleeding.

[26] This is attributable to the hypoproteinemia resulted as a consequence of hepatic dysfunction. One of the main functions of liver is pro-

- Reddish discolouration of eyes, oral cavity, blood mixed vomiting[27]; presence of blood in the faecal matter[28] and urine.
- Darkness in front of the eyes[29].
- Burning sensation in the body; tastelessness; thirst; distension of the abdomen[30]; drowsiness; altered state of consciousness[31]; loss of appetite[32].

## Halimaka Lakshana

यदा तु पाण्डोर्वर्णः स्याद्धरितश्यावपीतकः॥132॥
बलोत्साहक्षयस्तन्द्रा मन्द्राग्नित्वं मृदुज्वरः।
स्त्रीष्व्यपोऽङ्गमर्दश्च श्वासस्तृष्णाऽरुचिर्भ्रमः॥133॥
हलीमकं तदा तस्य विद्यादनिलपित्ततः। Ca.Ci. – 16/132-134

- *Halimaka* is the disease which is manifested due to the vitiation of *Vata* and *Pitta Dosha*.
- The person will be presented with lack of physical strength; lack of enthusiasm; drowsiness; impaired or loss of appetite; mild rise of body temperature; lack of interest in sexual act or loss of libido[33]; bodyache all over the body; breathing discomfort; thirst; tastelessness; giddiness
- The discolouration of skin[34] may be either greenish discolouration or blackish discolouration or yellowish discolouration

## Panaki Lakshana

प्रोगः। उक्तं हि तन्त्रान्तरे - 'संतापो भिन्नवर्चस्वं बहिरन्ते च पीनता।
पाण्डुता नेत्ररागश्च पानकीलक्षणं मतम्' इति॥132॥133॥–

Chakra, Ca.Ci. – 16/132,133

- *Panaki*[35] is another stage of *Kamala* which is mentioned by *Chakrapani* commentary in *Charaka Samhita*.
- The clinical features of *Panaki* are raised body temperature; improperly formed or loose stools, yellowish discolouration of the body everywhere including urine and stools
- Yellowish white discolouration and reddish discolouration of the eyes[36]

## Upadrava of Kamala[37]

सरक्ताक्षिमुखच्छर्दिविण्मूत्रो यश्च ताम्यति।
दाहारुचितृषानाहतन्द्रामोहसमन्वितः॥38॥
नष्टाग्निसंज्ञः क्षिप्रं हि कामलावान् विपद्यते। Ca.Ci. – 16/38,39

- Reddish discolouration of eyes
- Reddish discolouration of face or oral cavity
- Blood mixed vomiting
- Blood mixed stools
- Blood mixed urine
- Darkness in front of the eyes
- Burning sensation in the body
- Tastelessness
- Thirst
- Distension of the abdomen
- Drowsiness
- Altered state of consciousness
- Loss of appetite

## Approach to the patient of hepatobiliary dysfunction

- The individuals who are suffering from hepatobiliary dysfunction will be presented with yellowish discolouration of skin, sclera, ventral surface of tongue, dark yellowish discolouration of urine and

---

duction of plasma proteins. In the person who is suffering from chronic liver disease, he may have poor production of proteins, as a result of this, there will be increase in the interstitial compartment secondary to reduced oncotic pressure inside the capillaries.

[27] This is attributable as a sequel to the rupture of oesophageal varices.

[28] This is indicative of passage of blood from the rectum and lower gastrointestinal bleeding with rapid transit of blood across the intestines.

[29] This is attributable to syncopal episodes which may occur as a result of hypovolemic shock. Hypovolemia may occur as a result of hypoproteinemia which leads to the reduction of oncotic pressure which leads to the excess movement of fluid from the capillary to the interstitial spaces.

[30] This symptom is attributable to the accumulation of fluid in the peritoneal cavity (ascites) as a consequence of portal hypertension.

[31] These symptoms are attributable to acute liver failure which is seen in infective hepatitis or in eclampsia or in Weil's disease. This can be associated with various cranial nerve palsies or delirium and episodic convulsions.

[32] This symptom is attributable to the increased secretion in the gastrointestinal lumen as a sequel of portal hypertension.

[33] This symptom can be attributable to the erectile dysfunction or feminisation syndrome develops in an individual after chronic alcoholism. This is seen in alcoholic liver disease.

[34] This discolouration can be attributable to the excess presence of biliverdin (greenish discolouration) or to the excess presence of bilirubin (yellowish discolouration) or excess accumulation of transferrin or ferritin which is a biproduct of heme destruction (blackish discolouration). Ferritin can be stored in the cells of the liver.

[35] As per the clinical features of Panaki, any of the infection or inflammation of hepato biliary tree can be considered. Improperly formed or loose stools can be observed in the obstructive pathology of the hepato biliary disease. Yellowish discolouration can be first seen in the blood and in the urine and stools. This indicates the severe progression of the disease. Yellowish white discolouration of the eyes can be observed in increased conjugated bilirubin in the blood.

[36] Reddish discolouration of the eyes can be attributable to the hampered production of prothrombin which is continually formed in the liver and it is continuously utilised by the body for blood clotting. Thus, the person may have tendency to have bleeding in any part of the body.

[37] The applied aspect of this section is discussed in the context of Kumbha Kamala.

faecal matter. This abnormal mechanism is caused by wide variety of etiological factors vary from infections, drug interaction, toxin exposure, ischemia and autoimmune disorders.

## Overview of bilirubin metabolism

The breakdown of haeme (a component of haemoglobin) is responsible for the production of bilirubin (an insoluble waste product) and other bile pigments. Bilirubin must be made water soluble to be excreted. This transformation occurs in 5 steps: formation, plasma transport, liver uptake, conjugation and biliary excretion.

1. **Formation:** About 250 to 350 mg of unconjugated bilirubin forms daily; 70-80% derives from breakdown of degenerating (senescent) RBCs and 20-30% (early labelled bilirubin) derives primarily from other haeme proteins in the bone marrow and liver. Haemoglobin is degraded to iron and biliverdin, which is converted to bilirubin.
2. **Plasma transport:** Unconjugated (indirect) bilirubin is not water soluble; so this will be transported via plasma bound to albumin. This will not be passing through kidneys as the size of bilirubin which is attached to albumin cannot pass through glomerulus. Albumin binding weakens under certain conditions such as acidosis.
3. **Liver uptake:** The liver takes up bilirubin rapidly but does not take up the attached serum albumin.
4. **Conjugation:** Unconjugated bilirubin in the liver is conjugated to form mainly bilirubin diglucuronide, or conjugated bilirubin. This reaction is catalysed by the enzyme called glucuronyl transferase. This conjugated bilirubin is considered to be water soluble.
5. **Bilirubin excretion:** Bilirubin is excreted into bile ductules, interlobar bile ducts, and larger hepatic ducts. This further drains into main hepatic duct, thence to cystic duct and that will be stored in gall bladder. From the gall bladder, the bile is draining into common bile duct and later into second part of duodenum via ampulla of Vater.

- The common clinical manifestations of hepato biliary dysfunction can be observed in the following categories.
- Common non specific symptoms such as fatigue, anorexia, nausea and vomiting in severe cases
- Loose, fatty stools (steatorrhoea) can occur when cholestasis prevents sufficient bile from reaching the intestines. They may have risks of deficiencies of fat soluble vitamins such as vitamins A, D, E and K), osteoporosis and bleeding.
- Fever can be seen in viral or alcoholic hepatitis
- Jaundice seen in either hemolytic or hepatocellular or obstructive phenomena of hepatobiliary dysfunction
- Right upper quadrant pain due to liver disoders can happen due to passive congestion.
- Erectile dysfunction and feminisation are the phenomena usually the outcomes of effects of alcohol.

## Jaundice evaluation

- Severity of the illness is indicated by encephalopathy (e.g. mental status changes) or coagulopathy (easy bleeding, purpura or black tarry stool.
- Portal hypertension may manifest with signs such abdominal collateral vasculature, ascites and splenomegaly).
- Massive upper GI bleeding indicates the oesophageal varices.
- Acute jaundice in the young and healthy individuals suggests acute viral hepatitis
- Acute jaundice after acute drug or toxin exposure in healthy patients is likely due to that substance. Hence drug history or exposure to toxic substances is essential.
- A long history of heavy alcohol usage suggests alcoholic liver disease.
- A personal or family history of recurrent, mild jaundice without findings of hepatobiliary dysfunction suggests a hereditary disorder, usually Gilbert syndrome.
- Gradual onset of jaundice with pruritus, weight loss, clay coloured stools indicates intrahepatic or extrahepatic obstruction.
- Bood tests (bilirubin, aminotransferase, alkaline phosphatase) are essential for the differential diagnosis of jaundice
- Imaging of the abdomen most commonly and sometimes, biopsy or laparoscopy may be of help in the determination of the cause in jaundice.

## Key summary of the chapter

- Kamala is the spectrum of the disseases with Pitta Dosha vitiation, with Rakta Dhatu affliction, afflicting Raktavaha Srotas with Sanga and Vimargagamana as the type of Srotodushti involved during the manifestation of the disease.
- Amashaya is the Udbhava Sthana of the disease. Sarvasharira is considered as Sanchara Sthana and Vyakta Sthana of the disease.
- Charaka has mentioned 2 types of Kamala – **Koshthashakhashrita (Bahupitta)** and **Shakhashrita (Alpapitta) Kamala.**
- Both types of Kamala are again of two categories –
  1. Svatantra (primary cause) and
  2. Paratantra (secondary cause).

  Kumbhakamala, Halimaka, Panaki are different stages of Kamala.

## Self-Assessment: Questions for Review

### Long essays

- Explain the different types of Kamala with Nidana, Samprapti, Lakshana, Upadrava of the disease
- Describe Kamala in detail

### Short essays

- Explain Shakhashrita Kamala
- Describe Koshthashakhashrita Kamala
- Write the differences between Koshthashakhashrita and Shakhashrita Kamala

### MCQs

**1. The Anubandha Dosha in Shakhashrita Kamala is**

a. Vata;
b. Kapha;
c. Vata and Kapha;
d. Vata and Pitta

*Answer*: (b)

**2. The term Bhekavarna refers to the colour of**

a. Frog of rainy season;
b. Frog of other season;
c. Cheetah;
d. Tiger

*Answer*: (a)

**3. The Srotodushti observed in Kamala is**

a. Atipravritti;
b. Siragranthi;
c. Sanga only;
d. Sanga and Vimargagamana

*Answer*: (d)

**4. Whitish coloured stools is observed in**

a. Malaria;
b. Viral hepatitis;
c. Carcinoma of head of pancreas;
d. Hereditary spherocytosis

*Answer*: (c)

**5. Which of the following is an example of pre hepatic jaundice?**

a. Viral hepatitis;
b. Cirrhosis of liver;
c. Carcinoma of head of pancreas;
d. Sickle cell anemia

*Answer*: (d)

**6. Conjugated bilirubin rise seen in which of the following disease?**

a. Gilbert syndrome;
b. Malaria;
c. Hereditary spherocytosis;
d. Hepatitis B

*Answer*: (d)

**7. Tilapishta Nibha Purisha is seen in**

a. Pandu;
b. Kamala;
c. Atisara;
d. Grahani

*Answer*: (b)

**8. Kamala and Halimaka are said to be types of Pandu by**

a. Ksharapani;
b. Harita;
c. Chakrapani;
d. Gangadhar Rai

*Answer*: (b)

**9. The colour of Purisha in Ruddhapatha Kamala is**

a. Pita;
b. Rakta;
c. Shveta;
d. Harita

*Answer*: (c)

**10. Primary Srotas afflicted in the patient of Kamala is**

a. Rasavaha Srotas;
b. Raktavaha Srotas;
c. Mamsavaha Srotas;
d. Mutravaha Srotas

*Answer*: (b)

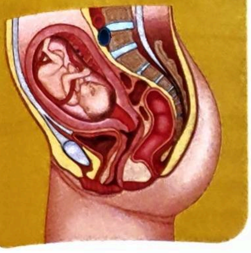
### Chapter resources

- https://byjus.com/biology/jaundice-symptoms/
- Charaka Samhita Chikitsa Sthana 16th chapter – Panduroga Chikitsa Adhyaya
- Sushruta Samhita Uttara Tantra
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Physical diagnosis – a textbook of symptoms and physical signs by Rustom Jal Vakil and Aspi F Golwalla, 13th edition, MPP Pvt. Ltd, Mumbai, 2010.

***

CHAPTER

27



# Udara Roga

## Learning Objectives

- ⇨ To learn the concept of Udara
- ⇨ To know about the Pratyatma Lakshana of Udara
- ⇨ To learn the Nidana and Samprapti of Udara mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of disease
- ⇨ To enlist the types of Udara
- ⇨ To know about the Purvarupa, Samanya Lakshana, Sadhyasadhyata of Udara
- ⇨ To know the Avastha Bheda of Udara
- ⇨ To know the concept of Doshaja Udara
- ⇨ To know the specific Lakshana of Baddhagudodara, Plihodara, Jalodara, Chidrodara

## Introduction

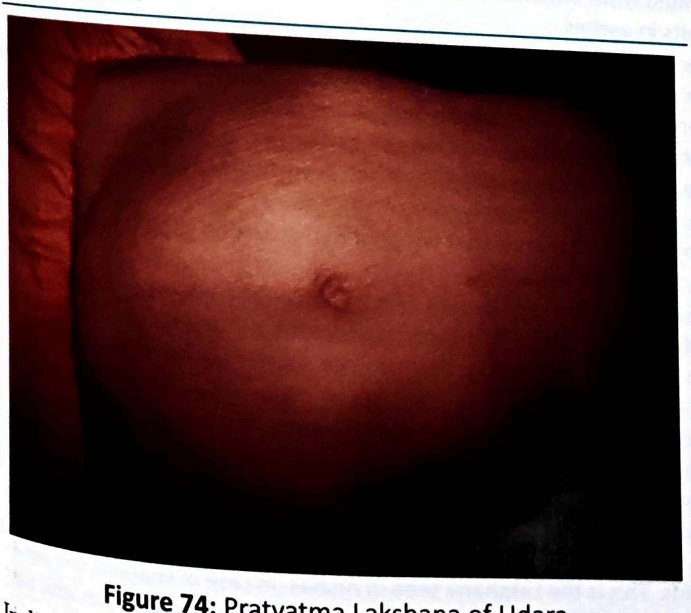


**Figure 74:** Pratyatma Lakshana of Udara

In literal sense, the term *Udara* refers to the anatomical structure i.e. abdomen. In the context of *Roganidana*, *Udara* is the spectrum of diseases, where in we can observe the generalized swelling of the abdominal region. This is different from *Gulma* which is usually a localised swelling in the abdominal region. *Udara* is due to the accumulation of fluids and *Dosha* in the abdominal region. When you speak about the part of the body as *Udara* which extends from the largest muscle of the body, diaphragm till the pelvis. Diaphragm separates abdomen from thorax. In the current understanding, generalized abdominal swelling arises in case of obesity, ascites, chronic constipation, chronic flatus accumulation and fetus in case of pregnant women. This is *Kapha* and *Vata* dominant disorder with the affliction of *Rasa*, *Udaka* and *Sveda*. In this disease, affliction of *Rasavaha*, *Udakavaha*, *Svedavaha*, *Pranavaha*, *Annavaha* and *Purishavaha Srotas* is seen with *Sanga* and *Vimargagamana* as the type of Srotodushti occurring during the progression of the disease.

Among the classification of *Vikara* as per *Sushruta*, this is categorized under *Adhyatmika Vikara*, further as *Amashayasamuttha Vikara* and *Sharirika Vikara* as further subcategory of the disease.

**उदराण्युत्सेधसामान्यात् शोथप्रभेदा एव॥** Chakra, Ca.Su. – 19/3

*Chakrapani* says regarding *Udara* as the variety of *Shotha* only because of common feature of swelling.

## Pratyatma Lakshana of Udara

**उदरोत्सेधसाधर्म्यादुदर** Madhu, Ma.Ni. – 35/1

*Pratyatma Lakshana* (cardinal feature) of *Udara* is generalized swelling of abdominal region. part of the body present between xiphisternum to pubic symphysis. This is different from Gulma as the disease will have localized swelling in the abdominal region.

## Nidana of Udara

रोगाः सर्वेऽपि मन्देऽग्नौ सुतरामुदराणि च।
अजीर्णान्मलिनैश्चान्नैर्जायन्ते मलसंचयात्॥1 ॥ Ma.Ni. – 35/1
अत्युष्णलवणक्षारविदाखम्लगराशनात्॥
मिथ्यासंसर्जनादूक्षविरुद्धाशुचिभोजनात्।
श्रीहाशौग्रहणीदोपकर्शनात् कर्मविश्रमात्॥1 2
क्लिष्टानामप्रतीकाराद्रौक्ष्याद्वेगविधारणात्॥1 3॥
स्त्रोतसां दूषणादामात् संक्षोभादति पूरणात्।
अर्शीबालशरुद्रोधादन्त्रस्फुटन मेदनात्॥1 4॥
अतिसंचितदोषाणां पापं कर्म च कुर्वताम्।
उदाप्युपजायन्ते मन्दाझीनां विशेषतः॥1 5॥

Ca.Ci. – 13/12-15

- When the person is suffering from *Mandagni*[1] (reduced digestive fire).
- When an individual is suffering from *Ajirna*[2] (indigestion).
- When the person consumes contaminated food substances[3] excessively.
- Excess consumption of *Ushna Virya* (hot in potency) substances.
- Excess consumption of *Lavana*, (salty), *Amla* (sour) *Rasa* substances.
- Excess consumption of alkaline substances.
- Excess consumption of *Vidahi* (producing burning sensation and thirst) substances[4].
- Exposure to *Gara Visha.*
- Improper post *Shodhana* measures[5].
- Excess consumption of *Ruksha* substances[6].
- Excess consumption of unwholesome food substances[7].
- When an individual is suffering from other diseases such as *Pliha, Arshas, Grahani,* emaciation of the body[8]
- Improper *Shodhana* therapy[9].

---

[1] In this context, the term Mandagni can be considered as poor secretion of hydrochloric acid. When there is reduced secretion of hydrochloric acid, where the pH of the gastric juice above 5, there will be no proteolytic activity takes place because of the inactivation of pepsinogen into pepsin. This will lead to poor protein absorption into the body. Thus, the person may develop the state of hypoproteinemia and this may lead to the generalised swelling of the abdomen or whole body itself.

[2] In the present context, the person will have either poor hydrochloric acid activity or inactivated pepsinogen. Due to this, the person may have poor absorption of protein resulting in the state of hypoproteinemia which further may lead to excess accumulation of fluid in the interstitial compartment.

[3] When an individual consumes contaminated food substances, inflammation of the stomach and intestines will be the first mechanism to occur, which further leads to poor absorption of proteins and electrolytes such as sodium, potassium, calcium ions. This will lead to the reduction in oncotic pressure which in turn may lead to the shift of fluid from intravascular compartment to the interstitial compartment and if the accumulation of fluid happens in the peritoneal cavity results in ascites.

[4] When an individual is having the exposure to these kinds of aetiological factors, he may have the vitiation of Pitta Dosha in the body. As per current understanding, the person who consumes more amount of Ushna substances, Lavana and Amla Rasa substances and Vidahi substances continuously, that may lead to inhibition to the gastric emptying as highly irritating substances coming in contact with duodenal mucosa lead to the closure of pyloric antrum. At the beginning of pathological events, this is termed as Alasaka. In due course of time, if an individual is involved in such kind of activities, that may be responsible for abdominal swelling, stomach in particular. These are the probable aetiological factors for the manifestation of malignant swelling of the stomach and other organs of alimentary canal.

[5] Let us take an example of consumption of curds soon after the post Shodhana measures, that will lead to the sudden vitiation of either Pitta or Kapha Dosha in the body.

[6] When the person consumes excess Ruksha (dry) substances, that will lead to the increase of Ruksha quality in the body, which leads to the vitiation of Vata Dosha further. If the person continuously consumes these substances, there will be decrease of Snigdha (unctuous) quality in the alimentary canal. It is being said that poor intestinal motility in the transverse colon, there will be greater absorption of water from the faecal matter and hardness of the faecal matter develops.
When there is more dryness present in the chyme, that will lead to excess transport of water into the chyme into the small intestine. This mechanism will lead to the reduced oncotic pressure in the portal veins thus it may initiate the pathological event of ascites.

[7] In this context, there will similar pathological mechanism which is described in the context of contaminated food substances intake.

[8] When an individual is suffering from Pliha (any splenic disorder), the person may have ascites. This is attributable to cirrhosis of liver leading to portal hypertension. when there is backflow of blood occurring in superior mesenteric vein, the person may present with bleeding per rectum where in the person will be suffering from internal haemorrhoids. This is the Lakshana seen in Arshas. In case of Grahani, the person may have abdominal swelling attributable to marked nutrition deficiency, proteins in particular. In case of Grahani, the person may have generalised oedema.

[9] As per Ayurveda literatures, the term Shodhana refers to purificatory procedures Vamana (emesis), Virechana (purgation), Basti (medicated enema), Nasya (nasal administration of medicine) and Raktamokshana (blood letting). The term improper Shodhana therapy refers to excessive or inadequate Shodhana therapy. Both of these mechanisms may lead to two types of events either there may be non progressive (compensated) shock or progressive shock.

**Non progressive (compensated) shock:**

1. Baroreceptors reflexes which elicit powerful sympathetic stimulation of the circulation
2. Central nervous system ischemic response, occurs when arterial pressure falls below 50 mmHg

- Not following any kind of treatment in serious diseases[10].
- Suppression of natural urges[11].
- In affliction of *Srotas*[12].
- When an individual is having *Ama in the body*[13].
- When an individual is consuming excessively irritating substances[14,15].
- When an individual consumes increased amount of nutritive substances.

---

3. Reverse stress-relaxation of the circulatory system which causes the blood vessels to contract around the diminished blood volume, so that the blood volume is available more adequately fills the circulation.
4. Formation of angiotensin by the kidney, which constricts peripheral arteries and causes decreased output of water and salt by the kidneys.
5. Formation of vasopressin (antidiuretic hormone) by posterior pituitary gland which constricts peripheral arteries and veins and greatly increases water retention by the kidneys.
6. Compensatory mechanisms that return the blood volume back toward normal, including absorption of large quantities of fluid from the intestinal mucosa and absorption of fluid into the blood capillaries from the interstitial compartment.

**Progressive shock:** Following events may happen in case of progressive shock

1. Cardiac depression: Coronary blood flow decreases below that required for adequate nutrition of myocardium.
2. Vasomotor failure: This occurs because of poor blood supply to the brain, if the arterial pressure falls below 30 mmHg in particular.
3. Blockage of very small blood vessels: Because of poor blood flow along the small blood vessels, there will be sluggish movement of blood which is termed as sludged blood. Further, there will accumulation of carbonic and lactic acid along with secretion of other deterioration products from the ischemic tissues may block the movement of blood along the microvessels.
4. Increased capillary permeability: happens because of capillary hypoxia leading to the capillary damage.
5. Generalised cellular deterioration: This is seen in liver, lungs and heart.
   - Active transport of sodium and potassium ions is greatly diminished. This will lead to excess accumulation of sodium and chloride ions inside the cells and extensive movement of potassium ions outside the cells.
   - Mitochondrial activity of the liver cells and other tissues becomes severly depressed
   - Lysosomes in the cells in widespread tissue areas begin to open, with intracellular release of hydrolases which further leads to intracellular degeneration.
   - Cellular metabolism of nutrients, such as glucose becomes greatly depressed.

Thus, improper Shodhana therapy may depress the hepatic function. Thus in the long run, the person may develop ascites.

[10] If an individual is suffering from serious illness and he is not following any of the treatment, the person may have nutrition deficiency, carbohydrates and electrolytes in particular. This will lead to fat mobilisation into the liver and this event may be a prequel to chronic liver disease, which may manifest as a cirrhosis of liver. Cirrhosis of the liver is one of the prequel of manifestation of ascites.

[11] Let us take the example of suppression of faecal matter, that will lead to the vitiation of Apana Vata which in turn results in the reverse movement of Apana Vata which further leads to the poor movements of the intestine leading to the distension of the abdomen. In this occasion, the person will have reverse movement of Samana Vata, which further leads to the generalised distention of the abdomen. Later, the person may have reverse movement of Prana Vata.

[12] Let us take the example of Raktavaha Srotas affliction. In case of affliction of this Srotas, Yakrit or/and Pliha may be afflicted in due course of time depending upon the entry of pathogen into the body, virulence of pathogen in the body etc. When Yakrit (liver) is afflicted, that may lead to the damage of the liver, which may lead to the cirrhosis of the liver, which further leads to the portal hypertension and the outcome of which is manifestation of ascites.

- It is being said that normally functioning liver performs around 72 different physiological functions of the body. Depending upon the nature of the aetiological factor exposure, the person may have compromise in few or all physiological functions. Thus, the person may have chronic liver disease. This may be either in the form of enlargement of liver or cirrhosis of liver. Thus, the person may have Yakritodara.
- During portal hypertension, the person may have enlargement of spleen secondary to backflow of blood in the splenic vein via backflow of the blood in portal vein. This may be attributable to Plihodara.

[13] When there is Ama in the body, it may be seen either in the alimentary canal or in the tissues level. When there is Ama in the body, it may be responsible for the reduced nutrient formation and assimilation to the body.

- When nutrient deficiency is present in the body, this may lead to the sequential depletion of carbohydrates, fat and proteins. This may lead to the manifestation of metabolic acidosis (either ketoacidosis due to increased fat metabolism or lactic acidosis due to increased muscle nutrient metabolism).
- When fat deposited in the adipose tissue is going to get mobilised, it may move into the liver forming the state of fatty degeneration of liver. This is earlier phase of cirrhosis of liver. This may lead to portal hypertension and thus the person may have the ascites manifestation.

[14] In this context, the pathological mechanism occurs similar to the description described in the context of excessive contaminated substances intake.

[15] When the person is consuming excess intake of irritating substances, this may lead to the inflammation of the alimentary canal, this may lead to nutrient depletion in the body, sequential loss of carbohydrate, fats and proteins. During fat metabolism, the person may have fatty degeneration of liver, thus this may lead to portal hypertension as a consequence of cirrhosis of liver which may develop after fatty degeneration of liver.

- When an individual is suffering from constipation[16,17]
- When trauma occurs to the abdomen[18]
- When there is excess accumulation of *Dosha* in the body
- When an individual is doing *Papa Karma* (socially banned activities)

## Samprapti of Udara

रुमा स्वेदाम्बुवाहीनि दोषाः स्त्रोतांसि संचिताः।
प्राणाश्यपानान् संदृष्य जनयन्त्युदरं नृणाम्॥2 0॥ Ca.Ci. – 13/20

- Excessively accumulated *Dosha* will obstruct the *Sveda* and *Udakavaha Srotas*, which will lead to displacement of *Udaka* to the *Udara* region
- In this disease, there will be affliction of *Pranavata*, *Pachakagni* and *Apanavata*.

## Samprapti Ghataka

- **Dosha :** *Kapha, Vata*
- **Dushya :** *Rasa, Udaka, Sveda*
- **Srotas :** *Rasavaha, Udakavaha, Svedavaha, Annavaha, Pranavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Udara*
- **Rogamarga :** *Abhyantara, Bahya* and *Madhyama*
- **Vyadhi Svabhava :** *Chirakari*
- **Sadhyasadhyata :** *Asadhya*

## Purvarupa of Udara

क्षुन्नाशः स्वाद्वतिस्निग्धगुर्वन्नं पच्यते चिरात्।
भुक्तं विदह्यते सर्व जीर्णाजीर्ण न वेत्ति च॥1 6॥
सहते नातिसौहित्यमीषच्छोपश्च पादयोः।
शश्वद्बलक्षयोऽल्पेऽपि व्यायामे श्वासमृच्छति॥1 7॥
वृद्धिः पुरीषेनिचयो रुक्षोदावर्तहेतुका।
बस्तिसन्धौ रुगाध्मानं वर्धते पाठ्यतेऽपि च॥1 8॥
आतन्यते च जठरमैपि लघ्वल्प भोजनात्।
राजीजन्म वलीनाश इति लिङ्गं भविष्यताम्॥1 9॥ Ca.Ci. – 13/16-19

तत्पूर्वरूपं बलवर्णकाला बलीविनाशो जठरे हि राज्यः॥7॥
जीर्णापरिज्ञानविदाहवत्यो बस्तौ रुजः पादगतश्च शोफः।
Su.Ni. – 7/7,8

- Loss of appetite[19]
- Delayed digestion of sweet, unctuous and heavy substances[20]
- Improper digestion of ingested food[21]
- The person is not in a position to know the digestion and indigestion of food[22]
- The person is not in a position to tolerate slight exertion
- Slight swelling of both feet (bilateral pedal oedema)[23]
- Rapid loss of strength[24]

---

GK

16 When an individual is suffering from constipation, the first and foremost, there will be affliction of Apanavata. This will lead to Udavarta, where there will be reverse movement of Vata leading to the affliction of Samanavata and Pranavata respectively in due course of time. When Samanavata is afflicted, there will be affliction of Ushma, Kleda and Sneha etc. This will lead to the generalised abdominal swelling and this swelling is attributable to the mechanism of meteorism. Here, the person may have borborygmi on auscultation of the abdomen.

17 When a person is suffering from constipation, this may lead to the vitiation and reverse movement of Apana Vata, which may lead to the vitiation and reverse movement of Samana Vata and at last, this may lead to the vitiation and reverse movement of Pranavata. Chronic constipation may lead to generalised abdominal swelling secondary to accumulation of faecal matter.

18 Mechanism of the injury may give the clue to the diagnosis. Closed injuries are due to waves of shock or direct compression of a viscus against a bony prominence. If a large segment of abdomen or abdominothoracic wall is compressed, it may burst or split organs like liver and spleen. If similar force is applied in case of breath holding, it may lead to rupture of diaphragm. The structures e.g. bladder, urethra which are attached to bones by fascial bands may be torn if such bones are fractured. In case of penetrating wounds, the length of the weapon and the velocity with which it was struck are very important. High velocity injuries produced by gunshot or fragments from exploding mines and shells penetrate deeply and may damage extensively anything in or around their paths. As far as physical examination of the patient in such occasion is concerned, the patient may have silent abdomen owing to peritonitis or he may have restlessness in case of intraperitoneal haemorrhage. The person may show signs of hypovolemia and anemia. The person may have thoracic movements in case of abdominal injuries. There will be generalised abdominal swelling secondary to meteorism or internal haemorrhage.

19 This can be attributable to backward flow of blood occurs in case of portal hypertension which in turn leads to increased secretion in the gastrointestinal lumen.

20 As per Ayurveda understanding, the consumption of Madhura, Snigdha and Guru substances will increase the Kapha Dosha in the body, thereby hampering the process of digestion.

21 This can be attributable to increased secretion observed in the gastrointestinal lumen.

22 This can be attributable to increased secretion in the alimentary canal because of backflow of the blood occurs as a result of portal hypertension.

23 This can be attributable to hypoproteinemia where reduced amount of proteins in the blood is seen.

24 This can be attributable to reduced absorption of water and electrolytes – sodium, potassium, calcium etc. For example, sodium ions can be rapidly depleted in case of gastrointestinal dysfunction. The outcome of this event is very rapid so that the serious symptoms are seen within hours.

- Breathlessness on performing slight activities[25]
- Increased accumulation of faecal matter
- Pain on either sides of iliac region
- Pain in the lower abdomen
- Distension of the abdomen
- Fullness of abdomen on consuming slight amount of food which is even light to digest[26]
- Appearance of veins in the abdomen[27]
- Loss of wrinkles in the abdomen or shininess of abdomen[28]

## Samanya Lakshana of Udara

कुक्षेराध्मानमाटोपः शोफः पादकरस्य च।
मन्दोऽग्निः श्लक्ष्णगण्डत्वं कार्येे चोदरलक्षणम् 21 Ca.Ci. – 13/21
आध्मानं गमनेऽशक्तिदौर्बल्यं दुर्बलाग्निता।
शोथः सदनमङ्गानां सङ्गो वातपुरीषयोः॥3॥
दाहस्तन्द्रा च सर्वेषु जठरेषु भवन्ति हि। Ma.Ni. – 35/3-4

- Distension of the abdomen[29]
- Gurgling sounds in the abdomen[30]
- Swelling of the upper and lower limbs[31]
- Loss of appetite[32]
- Sliminess of the temples
- Emaciation of the body[33]
- Difficulty in moving
- Debility
- Sluggish movement of the body parts[34]
- Constipation
- Retention of urine[35]

## Bheda of Udara

पृथग्दोषैः समस्तैश्च प्लीहबद्धक्षतोदकैः।
संभवन्त्युदराण्यष्टौ तेषां लिङ्गं पृथक् शृणु॥22॥ Ca.Ci. – 13/22

### 8 types of Udara as per Charaka

1. *Vataja Udara*
2. *Pittaja Udara*
3. *Kaphaja Udara*
4. *Sannipataja Udara*
5. *Plihodara*
6. *Baddhodara*
7. *Kshatodara*
8. *Udakodara* or *Jalodara*

पृथक्समस्तैरपि चेह दोषैः लीहोदरं बद्धगुदं तथैव।
आगन्तुकं सप्तममष्टमं चग्दरं चेति वदन्ति तानि॥4॥ Su.Ni. – 7/4

### 8 types of Udara as per Sushruta

1. *Vataja Udara*
2. *Pittaja Udara*
3. *Kaphaja Udara*
4. *Sannipataja Udara*
5. *Plihodara*
6. *Baddha Gudodara*
7. *Agantuja (Parisravi) Udara*
8. *Jalodara*

## Vataja Udara

रूक्षाल्पभोजनायासवेगोदावर्तकर्शनैः।
वायुः प्रकुपितः कुक्षिहृद्बस्तिगुदमार्गगः॥23॥
हत्वा कफमुद्धूय तेन रुद्धगतिस्ततः।
आचिनोत्युदरं जन्तोस्त्वङ्मांसान्तरमाश्रितः॥24॥

तस्य रूपाणि कुक्षिपाणिपादवृषणश्वयथुः, उदरविपाटनम्, अनियतौ च वृद्धिह्रासौ, कुक्षिपार्श्वशूलोदावर्ताङ्गमर्द पर्व भेदशुष्ककास-

---

[25] This can be attributable to push of the diaphragm upwards, so that compression of the thorax occurs leading to occurrence of breathlessness.

[26] As per Ayurveda literatures, because of above said reasons, first of all there will be vitiation of Apanavata, which further leads to the reverse movement of Vata leading to the affliction of Samanavata and at the end, there will be the affliction of Pranavata in due course of time if proper management of the disease is not met.

[27] This can be attributable to the development of collaterals of blood vessels so that blood supply to the extra tissue growth can be met.

[28] This can be attributable to stretching of the abdominal wall and thinning of the abdominal wall.

[29] This is a globular shaped abdomen. This can occur when there is excess accumulation of faeces, flatus or fluid in the abdominal region.

[30] The presence of gurgling sounds in the abdomen may indicate poor intestinal motility which can be seen in partial intestinal obstruction. This can also be observed in early phase of Udara disease.

[31] Swelling of the upper and lower limbs seen in case of protein deficiency in the body which is observed in the patients of chronic liver disease.

[32] This can be attributable to backflow of the blood into alimentary canal.

[33] This can be attributable to the increased fat loss from the body. This symptom occurs because of poor nutrient absorption from the body. Fat depletion occurs from buttocks, breasts, subcutaneous tissue and abdomen.

[34] This can be attributable to hampered absorption of nutrients including water, sodium, potassium, calcium ions which are essential for all kinds of skeletal, smooth and cardiac muscular activity and nerve conduction. Thus, poor absorption of these nutrients leads to sluggish movement of body parts.

[35] Constipation and retention of urine can be attributable to vitiation of Apanavata which further leads to sequential affliction of Samanavata and Pranavata.

कार्यदौर्बल्यारोचकाविपाकाः, अधोगुरुत्वं, वातवर्चोमूत्रसङ्गः, श्यावारुणत्वं च नखनयनवदनत्वमूत्रवर्चसाम्, अपि चोदरं तन्वसितराजीसिरासंततम्, आहतमाध्मातदृतिशब्दवद्भवति, वायुश्चोर्ध्वमधस्तिर्यक् च सशूलशब्दश्चरति, एतद्वातोदरमिति विद्यात् 25

Ca.Ci. – 13/23-25

- Consumption of dry substances
- Consumption of very little amount of food substances
- Excess exertional activities
- Suppression of natural urges
- Measures leading to emaciation of the body
- First, there will be *Agnimandya* which will be followed by vitiation of *Kapha Dosha* leading to the obstruction of movement of *Vata*
- Accumulation of *Jala* in abdominal region

## Lakshana of Vataja Udara

- Swelling of the abdomen, upper limbs, lower limbs, scrotum
- Excess stretch of the abdominal region
- Disproportionate increase and decrease of abdominal girth
- Pricking type of pain in stomach and sides of the abdomen
- Upward movement of obstructed *Vata* from *Pakvashaya*
- Bodyache
- Pain in the joints
- Dry cough
- Emaciation
- Debility
- Tastelessness
- Impaired digestion
- Heaviness of the lower part of the body
- Constipation, retention of urine and suppression of flatus
- Blackish or reddish discolouration of nails, eyes, face, urine and faecal matter
- Abdominal swelling filled with thin varicose veins
- Succussion splash can be heard
- Upward, downward and oblique movement of vitiated *Vata Dosha* associated with pricking type of pain and sounds

## Pittaja Udara

कट्वम्ललवणात्युष्णतीक्ष्णाग्न्यातपसेवनैः।
विदाह्यध्यशनाजीर्णैश्चाशु पित्तं समाचितम्॥26॥
प्राप्यानिलकफौ रुवा मार्ग मुन्मार्गमास्थितम्।
निहन्त्यामाशये वह्निं जनयत्युदरं ततः॥27॥

रूपाणि- दाहज्वरतृष्णामूर्च्छातीसार- भ्रमाः, कटुकास्यत्वं, हरितहारिद्रत्वं च नखनयनव- दनत्वङ्यूत्रवर्चसाम्, अपि चोदरं नील पीतहारिद्र- हरितताम्रराजीसिरावनद्धं दह्यते, दूयते, धूप्यते, ऊष्मायते, विद्यते, क्किद्यते, मृदुस्पर्शं क्षिप्रपार्कं च भवति; एतत् पित्तोदरमिति

Ca.Ci. – 13/26-28

विद्यात्॥28॥

- Excess consumption of *Katu* (pungent), *Amla* (sour) and *Lavana* (salt) *Rasa* substances
- Excess consumption of *Ushna Virya* (hot in potency) substances
- Excess consumption of highly irritating substances
- Excess exposure to fire and sunlight for example, cooks, manual labourers
- Excess consumption of *Vidahi* (producing burning sensation in the chest and thirst) food substances
- Consumption of food before the digestion of previously ingested meal
- First there will be vitiation of *Pitta* associated with *Vata* and *Kapha* vitiation and there will be loss of appetite

## Lakshana of Pittaja Udara

- Burning sensation
- Fever
- Thirst
- Altered state of consciousness
- Diarrhoea
- Giddiness
- Pungent taste in the mouth
- Greenish or yellowish discolouration of nails, eyes, face, skin, urine and faecal matter
- Abdomen is filled with visible veins which have bluish, yellowish, turmeric coloured, greenish, coppery colour
- *Lakshana* or clinical features indicate the increase of *Pitta* in the body such as burning sensation, abnormal hot perception, sweating etc
- Rapid suppuration

## Kaphaja Udara

अव्यायामदिवास्वप्नस्वाद्वतिस्निग्धपिच्छिलैः।
दधिदुग्धोदकानूपमांसैश्चाप्यतिसेवितैः॥29॥
क्रुद्धेन श्लेष्मणा स्रोतः स्वावृतेष्वावृतोऽनिलः।
तमेव पीडयन् कुर्यादुदरं बहिरन्त्रः॥30॥

तस्य रूपाणि गौरवारोचकाविपाकाङ्गमर्दाः, सुप्तिः, पाणिपादमुष्कोरुशोफः, उत्क्लेशनिद्राकास - श्वासाः, शुक्लत्वं च नखनयनवदनत्वमूत्रवर्चसाम् अपि चोदरं शुक्लराजीसिरासंततं, गुरु, स्तिमितं, स्थिरं, कठिनं च भवति एतच्छ्लेष्मोदरमिति विद्यात्॥31॥

Ca.Ci. – 13/29 – 31

- Physical inactivity
- Excess sleep during day time
- Excess consumption of unctuous and slimy substances
- Excess consumption of curds, milk and milk products
- Excess consumption of domestic animals and animals of marshy places
- *Kapha Dosha* will vitiated excessively leading to the obstruction of movement of *Vata*

## Lakshana of Kaphaja Udara

- Heaviness of the abdomen
- Tastelessness
- Impaired digestion
- Bodyache
- Tingling sensation
- Swelling of upper and lower limbs and genital region
- Nausea
- Excess sleep
- Cough
- Breathing discomfort
- Whitish discolouration of nails, eyes, face, skin, urine and faecal matter
- Abdomen is filled whitish coloured varicose veins
- Heaviness of abdomen and body parts
- Sensation of covering of the body with wet cloth
- Firm and hard swelling

## Sannipataja Udara

दुर्बलाग्नेरपथ्यामविरोधिगुरुभोजनैः।
स्त्रीदत्तैश्च रजोरोमविण्मूत्रास्थिनखादिभिः॥3 2॥
विषैश्च मन्दैर्वाताद्याः कुपिताः संचयं त्रयः।
शनैः कोष्ठे प्रकुर्वन्तो जनयन्त्युदरं नृणाम्॥3 3॥

तस्य रूपाणि - सर्वेषामेव दोषाणां समस्तानि लिङ्गान्युपलभ्यन्ते, वर्णाश्च सर्वे नखादिषु, उदरमपि नानावर्णराजीसिरासंततं भवति; एतत् सन्निपातो- दरमिति विद्यात्॥3 4॥

Ca.Ci. – 13/32-34

- When the person is having poor Agni (digestive fire)
- When the person consumes *Apathya* (unhealthy food), *Ama* (improperly cooked), *Virodhi* (unwholesome food), Guru (heavy to digest) food substanes
- If the food is contaminated with menstrual blood, body hairs, faecal matter, urine, bone and nails, toxic substances
- Vitiation of all three *Dosha* occurs and responsible for the manifestation of *Udara*.

## Lakshana of Sannipataja Udara

- Clinical features of all three *Doshaja* varieties of *Udara*
- Various colours in skin, blood vessels, nails, eyes
- Stretch marks of different colours
- Enlarged abdomen

## Plihodara[36]

अशितस्यातिसंक्षोभाद्यानयानाति चेष्टितैः।
अतिव्यवायभाराध्ववमनव्याधिकर्शनैः॥3 5॥
वामपार्श्वाश्रितः प्लीहा च्युतः स्थानात् प्रवर्धते।
शोणितं वा रसादिभ्यो विवृद्धं तं विवर्धयेत्॥3 6॥

तस्य प्लीहा कठिनोऽष्ठीलेवादौ वर्धमानः कच्छपसंस्थान उपलभ्यते स चोपेक्षितः क्रमेण कुक्षिं जठरमध्यधिष्ठानं च परिक्षिपन्नुदरमभिनिर्वर्तयति॥3 7॥

तस्य रूपाणि – दौर्बल्यारोचकाविपाकवर्चोमूत्रग्रहतमः प्रवेशपिपासाङ्गमर्दच्छर्दिमूर्च्छाङ्गसादकासश्वासमृदुज्वरानाहाग्निनाशकार्यास्यवैरस्यप- वैभेदकोष्ठवातशूलानि अपि चोदरमरुणवर्णं विवर्णं वा नील हरितहारिद्रराजिमद्भवति; एवमेव यदपि दक्षिणपार्श्वस्थं कुर्यात्, तुल्यहेतुलिङ्गौषधत्वात्तस्य लीहजठर एवावरोध इति एतत् प्लीहोदरमिति विद्यात्॥3 8॥

Ca.Ci. – 13/35-38

- Excess consumption of food immediately after vigorous exercise or travelling or lifting heavy weight etc
- Excess sexual intercourse
- Excessive *Vamana Karma* (emesis)
- As a effect of several primary diseases
- Due to the vitiation of *Rasa, Rakta,* there will be increase of *Pliha* which is present in the left side of the abdomen and this will be displaced from its own site. The swelling arising from *Pliha* will slowly enlarge and becomes hard and the swelling simulates the shell of tortoise leading to the increase in size of abdomen and covers the entire abdomen.

## Lakshana of Plihodara

- Debility
- Tastelessness
- Impaired digestion
- Constipation
- Retention of urine
- Darkness in front of the eyes

---

[36] In this type of Udara, enlargement of abdominal region is observed in the left upper quadrant. The nature of the swelling is similar to the back of tortoise.

- As per Charaka, 2 types of Pliha Vriddhi can be observed – Chyuta (Visceroptosis of spleen) and Achyuta (no descent of spleen). Sankshobha etc will lead to Chyuta type of Pliha Roga is seen and in case of Rakta Dhatu involvement, Achyuta type of Pliha enlargement is seen.

- Thirst
- Bodyache
- Vomiting
- Altered state of consciousness
- Sluggish movement of body parts
- Cough
- Breathing discomfort
- Mild fever
- Distension of the abdomen
- Loss of appetite
- Emaciation
- Abnormal perception of the taste
- Joint pain
- Pain abdomen
- Reddish discolouration of abdomen with bluish or yellowish colour of blood vessels over the abdomen

## Baddha Gudodara[37]

पक्ष्मबालैः सहान्नेन भुक्तैर्बद्धायने गुदे।
उदावर्तैस्तथाऽशभिरन्त्र संमूर्च्छनेन वा॥39॥
अपानो मार्गसंरोधाद्धत्वाऽग्निं कुपितोऽनिलः।
वर्चः पित्तकफान् रुद्धा जनयत्युदरं ततः॥40॥

तस्य रूपाणि - तृष्णादाहज्वरमुखतालुशोषोरुसादकासश्वास दौर्बल्यारोचका विपाकवर्चोमूत्रङ्गाध्मानच्छर्दिक्षवथुशिरोहन्नाभिगुदशूलानि, अपि चोदरं मूढवातं स्थिरमरुणं नीलराजि सिरावनद्ध- राजकं वा प्रायो नाभ्युपरि गोपुच्छवदभिनिर्वर्तत इति एतद्बद्धगुदोदरमिति विद्यात्॥41॥ Ca.Ci. – 13/39-41

- If the person consumes food substances contaminated with hairs
- If the person is suffering from *Udavarta* (condition where reverse movement of *Vata* is seen) or *Arshas* (hemorrhoids)
- Because of above reasons, the contents of intestines, foreign bodies and faeces gets blocked in the intestine. This is leading to the vitiation of *Apana Vata* due to which there will be reverse movement of Vata leading to distension of abdomen.

## Lakshana of Baddhagudodara

- Thirst
- Burning sensation
- Fever
- Dryness of mouth, palate
- Sluggish movement of thighs
- Cough
- Breathing discomfort
- Debility
- Tastelessness
- Impaired digestion
- Constipation
- Retention of urine
- Distension of abdomen
- Vomiting
- Sneezing
- Headache
- Chest discomfort
- Pain in the umbilical region
- Pain around anal region
- Abnormal movement of *Vata* in abnormal directions
- Firm and stable swelling of the abdomen
- Abdominal swelling associated with reddish or bluish discolouration of the veins over the abdomen
- The swelling situated above the umbilicus in the shape resembling the tail of cow (broad above and tapering below)

## Chidrodara[38]

शर्करातृणकाष्ठास्थिकण्टकैरन्नसंयुतैः।
भिद्येतात्रं यदा भुक्तैर्नृम्भयाऽत्यशनेन वा॥42॥
पाकं गच्छेद्रसस्तेभ्यश्छिद्रेभ्यः प्रस्रवद्बहिः।
पूरयन् गुदमन्त्रं च जनयत्युद्रं ततः॥43॥

तस्य रूपाणि - तदधो नाभ्याः प्रायोऽभिवर्धमा- नमुदकोदरं भवति, यथाबलं च दोषाणां रूपाणि दर्शयति, अपि चातुरः सलोहितनील पीतपिच्छिल- कुणपगन्ध्यामवर्चं उपवेशते, हिक्काश्वासकासतृष्णाप्रमेहारोचकाविपाकदौर्बल्यपरीतश्च भवति; एतच्छिद्रोदरमिति विद्यात्॥44॥ Ca.Ci. – 13/42-44

- Consumption of sharp edged instruments such as glass, stones, wooden pieces, bones, thorns or nails in the food
- These instruments tear the walls of intestines. This mechanism will lead to the leak of contents of the intestine to the peritoneum.
- The accumulation in the peritoneum will lead distension of the abdomen leading to the manifestation of *Chidrodara*.

## Lakshana of Chidrodara

- Increase of swelling below the umbilicus

---

[37] Baddhagudodara is a type of Udara where consumption of body hairs, scalp hairs along with food intake is responsible this type of the disease. This is responsible for vitiation of Apana Vata resulting in reverse movement of the same, leading to Udavarta. This is attributable to chronic intestinal obstruction.

[38] Chidrodara is the type of Udara, where disease manifests due to the injury occurs to the intestines. This is responsible for reddish, yellowish etc discolouration of faecal matter.

Depending upon the *Dosha* vitiation, the clinical features may vary.

- Reddish, bluish, yellowish, slimy passage of stools with cadaveric smell
- Hiccups
- Breathing discomfort
- Cough
- Thirst
- Excess micturition
- Tastelessness
- Impaired digestion
- Debility

## Jalodara[39]

स्नेहपीतस्य मन्दाः क्षीणस्यातिकृशस्य वा।
अत्यम्बुपानान्नष्टेऽग्नौ मारुतः क्लोनि संस्थितः॥45॥
स्रोतःसु रुद्धमार्गेषु कफचोदकमूच्छितः।
वर्धयेतां तदेवाम्बु स्वस्थानादुदराय तौ॥46॥
तस्य रूपाणि – अनन्नकाङ्क्षा पिपासागुदस्त्रावशूलश्वासकास
दौर्बल्यानि अपि चोदरं नानावर्णरा- जिसिरा संततमुदकपूर्ण
दृतिक्षोभसंस्पर्श भवति, एतदुदकोदरमिति विद्यात्॥47॥

Ca.Ci. – 13/45-47

- In the person who is having *Mandagni* who has taken *Snehapana*
- The person who has excess depletion of body tissues
- Excess emaciated individual
- The person who has loss of appetite due to excess drinking of water
- *Vata Dosha* gets vitiated to harm and obstruct the channels of *Kloma* which is the *Mula* of *Udakavaha Srotas*. *Udaka* and other *Dosha* gets deviated to *Koshtha* and starts accumulating in *Koshtha* to produce *Udara*. As the chief content of *Udara* in this situation is *Jala* (water), the name *Jalodara* came to this particular clinical condition.

## Lakshana of Jalodara

- Tastelessness
- Thirst
- Secretion from anus
- Pricking type of pain in abdomen
- Breathing discomfort
- Cough
- Debility
- Abdominal swelling with visible veins having multiple colours, accumulation of water in the abdomen. On tapping the abdomen, we can observe the fluid thrill.

### 3 stages of Jalodara are mentioned by Charaka.

1. *Ajatodaka* stage (where no fluid accumulation in the abdomen)
2. *Piccha* stage (slimy stage where sliminess is present in the abdominal region)
3. *Jatodaka* stage (where fluid accumulation in the abdomen)

## Ajatodaka Avastha of Jalodara

अजातशोथमरुणं सशब्दं नातिभारिकम्।
सदा गुडगुडायंच्च सिराजालगवाक्षितम्॥55॥
नाभि विष्टभ्य पायौ तु वेगं कृत्वा प्रणश्यति।
हृन्नाभिवङ्क्षणकटीगुदप्रत्येकशूलिनः॥56॥
कर्कशं सृजतो वातं नातिमन्दे च पावके।
लोलस्याविरसे चास्ये मूत्रेऽल्पे संहते विषि॥57॥
अजातोदकमित्येतैर्लिङ्गैर्विज्ञाय तत्त्वतः।
उपाक्रमेद्भिषग्दोषबलकालविशेषवित्॥58॥

Ca.Ci. – 13/55-58

- This is the stage of *Udara* where notable amount of fluid is not accumulated in the *Udara* region.
- Reddish colour of abdomen
- Gurgling sound in the abdomen
- No heaviness of the abdomen
- Abdominal wall is rigid with visible network of veins
- Abnormal *Vata* will move through anus by stiffening umbilical region
- Pricking type of pain in chest, umbilical region, groin, waist and anal region
- Loud and harsh sound is produced while passing the flatus
- Medium digestive fire
- Excessive salivation and reduced micturition

### Piccha stage of Jalodara:

This is the intermediate stage of *Ajatodaka* and *Jatodaka* stage of *Jalodara*. This stage is characterized by slimy state of *Udara* region.

यति; तत्र पिच्छोत्पत्तौ मण्डलमुदरं गुरु स्तिमित माकोठितमशब्दं
मृदुस्पर्शमपगतराजीकमाक्रान्तं नाभ्यामेवोपसर्पति।
ततोऽनन्तरमुदकप्रादु-

Ca.Ci. – 13/48

- Globular swelling of the abdomen
- Heaviness of the abdomen
- Sensation of wet cloth covering the whole body

---

[39] In this condition, the presence of Jala (water) is observed in Udara region. In other words, more amount of water is accumulated in peritoneal cavity.
- As per Ayurveda, 3 stages of Jalodara are mentioned. Ajatodakavastha, Picchavastha and Jatodakavastha.

- Percussion sound can be heard
- Soft in touch in the abdominal region
- Visible veins which radiate from the umbilicus

**Jatodaka stage of Jalodara:** This is the third and last stage of *Jalodara*. In this stage, there will large amount of accumulation of *Jala* in the abdominal region. This is incurable in prognosis. The clinical features of *Jatodaka* are as follow:

**यति; तत्र पिच्छोत्पत्तौ मण्डलमुदरं गुरु स्तिमितमाकोठितमशब्दं**
**मृदुस्पर्शमपगतराजीकमाक्रान्तं नाभ्यामेवोपसर्पति।**
**ततोऽनन्तरमुदकप्रादु-** Ca.Ci. – 13/48

- Excessive increase in the size of abdomen due to the accumulation of fluid in abdomen
- Visible veins seen in *Picchavastha* looks to enter deep inside the abdominal region
- Excess accumulation of fluid in the abdomen can be easily examined with necessary physical examination i.e. fluid thrill.

## Upadrava of Udara

**तदाऽऽतुरमुपद्रवाः स्पृशन्ति – छर्यतीसारत- मकतृष्णा-**
**श्वासकासहिका दौर्बल्य पार्श्वशूलारुचि- स्वरमेदमूत्र-सङ्गादयः;**
**तथाविधमचिकित्स्यं विद्यादिति॥49॥** Ca.Ci. – 13/49

- Vomiting[40]
- Diarrhoea[41]
- Darkness in front of the eyes
- Thirst[42]
- Breathing discomfort
- Cough
- Hiccups[43]
- Debility[44]
- Pain in sides of the abdomen[45]
- Tastelessness
- Hoarseness of voice
- Retention of urine[46]

## Asadhya Lakshana of Udara

**शूनाक्षं कुटिलोपस्थमुपक्लिन्नतनुत्वचम्।**
**बलशोणितमांसाग्निपरिक्षीणं च वर्जयेत्॥52॥**
**श्वयथुः सर्वमर्मोत्थः श्वासो हिक्काऽरुचिः सतृद्र।**
**मूर्च्छाच्छर्दिरती सारो निहन्त्युदरिणं नरम्॥53॥**
**जन्मनैवोदरं सर्वं प्रायः कृच्छ्रतमं मतम्।**
**बलिनस्तदजाताम्बु यत्नसाध्यं नवोत्थितम्॥54॥** Ca.Ci. – 13/52-54

- Swelling of *Indriya*[47]
- Abnormal shape of genital organs
- Moist and thin skin of the individual[48]
- Extreme loss of physical strength
- Extreme loss of blood in the body
- Extreme muscular atrophy in the affected individual[49]
- Extreme loss of appetite[50]
- Swelling of all *Marma*
- Breathing discomfort
- Hiccup[51]
- Tastelessness
- Thirst[52]

---

[40] This can be observed when there is backflow of the blood in the stomach. This will lead to stretch of the stomach wall leading to vomiting.

[41] This can be observed when there is backflow of the blood into the small and large intestine and there is poor absorption from the intestines.

[42] These symptoms can be attributable to hypovolemia as there will be shift of fluid from the body into peritoneal cavity.

[43] These symptoms are attributable to excess accumulation of the fluid in the peritoneal cavity which compresses the diaphragm leading to the compromise in the respiratory function.

[44] This is attributable to poor nutrient absorption and the person will have increased mobility of fat into the liver leading to the fatty degeneration and thereby the person will have appearance of debility.

[45] Pain on the sides of the abdomen indicates the excess stretching of the abdominal wall due to the presence of excess fluid in the peritoneal cavity.

[46] This is attributable to poor renal blood supply which occurs as a secondary manifestation of huge ascites.

[47] Swelling of the Indriya such as skin is attributable to the reduced concentration of protein in the blood which may lead to generalised slow pitting type of swelling.

[48] Moist and thin skin of the abdominal wall is attributable to huge ascites.

[49] This is attributable to nutrient loss either carbohydrate or fat or proteins or micronutrients. This occurs due to the shift of the excess displacement of the fluid from the intravascular compartment into interstitial compartment (peritoneal cavity). Thus, other parts of the body receive minimum amount of the blood supply, thus, the person may have above said clinical features.

[50] This is attributable to the consequence of portal hypertension. Because of portal hypertension, there will be backflow of the blood to the superior mesenteric vein and splenic vein. When there is backflow of the blood into the superior mesenteric vein, the person may have increased secretion in the intestinal lumen and if there is backflow of blood, the person maya have increased secretion in the gastric lumen. In both situations, the person may develop loss of appetite.

[51] This is attributable to the huge ascitic swelling which compresses diaphragm leading to the upward push of the lungs and thus person may present with breathing discomfort or hiccups.

[52] This is attributable to reduced fluid in the intravascular compartment which occurs as a result of increased accumulation of fluid in the interstitial compartment, peritoneal cavity in particular. This leads to the manifestation of hypovolemia and in turn the person may develop thirst.

- Altered state of consciousness[53]
- Vomiting
- *Diarrhoea*[54]
- By nature all types of *Jalodara* from the beginning of the pathogenesis, is difficult to cure
- If the *Rogibala* is more and the person is having *Ajatodaka* (absence of fluid in the abdomen) stage of the illness and *Udara* which is of short duration such disease is considered to be treatable with much effort.

## Sadhyasadhyata of Udara

वातात्पित्तात्कफात् प्लीह्नः सन्निपातात्तथोदकात्।
परं परं कृच्छ्रतरमुदरं भिषगादिशेत्॥50॥
प्रायो भवत्यभावाय च्छिद्रान्त्रं चोदरं नृणाम्॥51॥
पक्षाद्बद्धगुदं तूर्ध्वं सर्वं जातोदकं तथा। Ca.Ci. – 13/50-51

- *Vataja Udara, Pittaja Udara, Kaphaja Udara* and *Sannipataja Udara* are considered as having increase in severity in the successive order.
- All types of *Udara* finally lead to the manifestation of *Jalodara*.
- *Baddhagudodara*[55] disease is incurable when the duration of the illness crosses 15 days.
- *Jalodara* of any cause is considered to be *Asadhya* (incurable) in nature.
- *Chidrantra*[56] is considered to be an immediately life threatening disease among the types of *Udara*.

## Splenomegaly

Splenomegaly is the swelling of the spleen which is seen in left hypochondriac region.

This is usually examined by bimanual method of palpation. Situation of spleen, size, shape, consistency, surface, edge, tenderness, movement of spleen with respiration is examined while assessment of spleen.

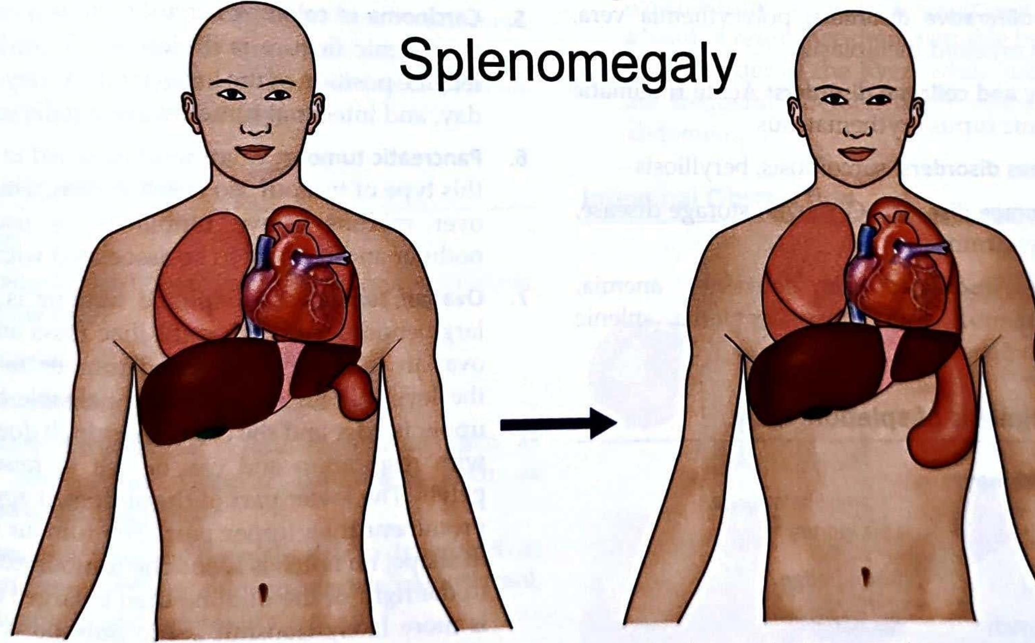


**Figure 75:** Clinical differentiation of normal spleen and splenomegaly

---

[53] This is attributable to hypovolemia leading to the manifestation of either hypovolemic shock or syncopal episode.

[54] This is attributable to the consequence of ascites manifestation as a result of either intestinal tuberculosis or malignant ascites depending upon the nature of progression of pathological events.

[55] This can be attributable to chronic intestinal obstruction. This may be associated with obstipation or colicky type of abdominal pain or faeculent vomiting or visible peristalsis or oliguria or tetany in as late manifestation.

[56] The term Chidrantra can be considered as injury to the abdomen.
Abdominal injuries are broadly classified into closed (blunt or crush) injuries and open (penetrating or stab) injuries.
**Closed injuries:** is caused by compressive force such as fall from height, blow by fist or by blunt instruemnts e.g. lathi. Crush injuries may occur in run over accidents or fall of heavy objects on the abdomen. Seat belt injury is also included in the group which may cause even the rupture of intestine.
Open injuries: is caused by sharp cutting instrument e.g. knife or razor or by penetrating injury e.g. bullet or missile. In this type of injury, peritoneal cavity is exposed outside and peritonitis is inevitable.
When there is internal haemorrhage, the person may have pallor, restlessness, small thread pulse, deep and sighing respiration (air hunger), subnormal temperature and collapse are seen.
Depending upon the organ injured such as liver, spleen, small intestine, large intestine, kidneys, urinary bladder etc, the person may show different clinical features which are usually life threatening if proper care is not taken.

## Causes of splenomegaly

1. **Infections:**
    a. **Bacterial:** septicemia, typhoid, infective endocarditis, tuberculosis, brucellosis
    b. **Viral:** hepatitis, infectious mononucleosis
    c. **Protozoal:** malaria, kalazar
    d. **Ricketsial:** typhus
2. **Circulatory:** congestive cardiac failure, portal hypertension, hepatic or portal vein thrombosis, splenic vein obstruction
3. **Haematological:**
    a. **Hemolytic disorders:** hereditary spherocytosis, hereditary elliptocytosis, thalassemia, hemoglobinopathies
    b. **Malignancy:** acute leukemia, chronic myeloid leukemia, chronic lymphocytic leukemia, lymphoma
    c. **Myeloproliferative disorders:** polycythemia vera, primary myeloid metaplasia
4. **Inflammatory and collagen disorders:** Acute rheumatic fever, systemic lupus erythematosus
5. **Granulomatous disorders:** sarcoidosis, berylliosis
6. **Metabolic storage diseases:** Glycogen storage disease, Gaucher's syndrome
7. **Miscellaneous disorders:** Iron deficiency anemia, pernicious anemia, amyloidosis, myeloma, splenic cysts, thyrotoxicosis

## Differential diagnosis of splenomegaly

1. **Enlarged left kidney:**

| Spleen | Left kidney |
|---|---|
| Sharp edge | Round edge |
| A characteristic notch | No notch |
| Angular poles | Rounded poles |
| Superficial | Deep |
| Fingers cannot be pushed between spleen and costal margins | Fingers can be pushed between kidney and costal margin |
| Dull on percussion | Vertical band of colonic resonance on front |
| Moves freely with respiration | Movement with respiration is not so marked |
| Moves early on inspiration | Moves late on inspiration |
| Direction of movement on respiration downwards and to the right | Movement directly downward on respiration |
| Tendency to bulge forwards and inwards | Tendency to bulge into the loin |
| The loin is resonant on percussion posteriorly | No area of resonance between mass and the spine, the whole loin is dull |
| Cannot be pushed back into the loin | Can be pushed back into the loin |

2. **Liver enlargement:** A greatly left lobe of liver may simulate splenic swelling. The enlargement of liver will be usually be tender, a notch is usually absent, the surface may be irregular.
3. **Carcinoma of stomach:** The edge of carcinomatous lump involving body of stomach is not well defined, a notch is absent, it extends more to the right than upwards.
4. **Suprarenal tumour:** The physical signs of this tumour may be closely similar to those of kidney tumour. In this occasion, it is easier to pass the fingers between the swelling and left costal margin.
5. **Carcinoma of colon:** A carcinomatous mass involving the splenic flexure is ill-defined, a notch cannot be felt, the position of the lump tends to vary from day to day, and intestinal tumours are usually conspicuous.
6. **Pancreatic tumour:** Commonly situated in midline. In this type of tumour, no notch is seen, usually crosses over midline above umbilicus, is usually more nodular and is likely to be associated with jaundice.
7. **Ovarian tumour:** The splenic tumour is sometimes large enough to reach right iliac fossa and simulate ovarian tumour. An ovarian tumour rarely attains the level of ribs, a gap being palpable between its upper border and the costal margin. It does not move with respiration and can be felt to raise from the pelvis. The lower part of the abdomen appears more prominent than upper part. The tumour is globular in shape, no notch is seen. The tumour extends more to the right of the midline than enlarged spleen and is more likely transmit aortic pulsations. A vaginal examination confirms its ovarian origin.
8. **Faecal accumulations:** The splenic flexure or adjacent part of the transverse or descending colon when loaded with faeces has been mistaken for enlarged spleen. Such a mass is however more irregular and cylindrical in shape and can be indeded by the finger.

## Hepatomegaly

- The term hepatomegaly refers to the increase in size of the liver. While discussing hepatomegaly, we need to differentiate visceroptosis of the liver or descent of liver. Visceroptosis is actually displacement of liver from its place due to multiple reasons such as massive pleural effusion or empyema of right pleural cavity etc.

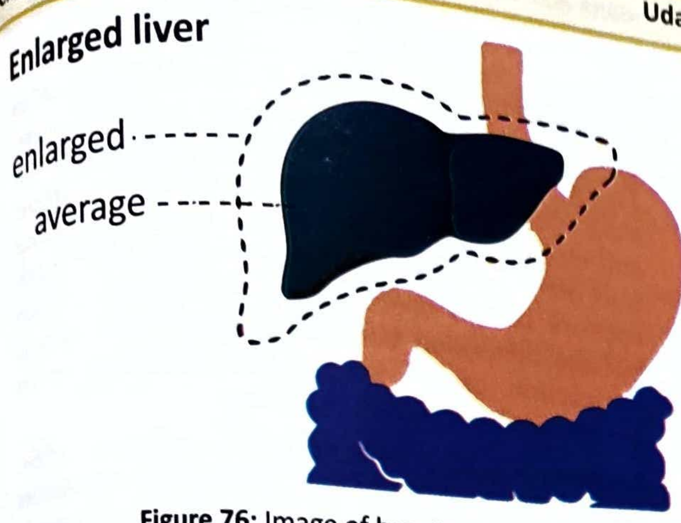


Figure 76: Image of hepatomegaly

- Palpation of the liver should be done by using radial border of index finger of the right upper limb to identify the lower border of the liver and percuss from right 2nd intercostal space to identify the upper border of liver. This will help to measure the size of the liver.
- Size of liver, shape, edge, surface, tenderness, consistency, movement of liver with respiration and sudden change in the size of the liver has to be noted during the examination of liver.

## Causes of Hepatomegaly

1. **Infection:**
    a. **Viral:** infective hepatitis, infectious mononucleosis, yellow fever
    b. **Bacterial:** Tuberculosis, typhoid
    c. **Protozoal:** Amoebiasis, malaria, kalazar
2. **Circulatory disturbances:** Local congestion such as portal obstruction; General congestion such as congestive cardiac failure
3. **Toxic hepatitis:** Chronic hepatitis due to drugs such as isoniazid, methyldopa, chlorpromazine, paracetamol, nitrofurantoin and cytotoxic agents
4. **Reticulosis:** Leukemia, Hodgkin's disease, non Hodgkin's lymphoma, multiple myeloma
5. **Biliary obstruction:** Biliary calculi, tumour or stricture of the bile ducts
6. **Infiltrations:** Fatty infiltration, lipid storage diseases
7. Tumours and cysts: Benign and malignant hepatoma, benign and malignant cholangioma, secondaries, hydatid cyst
8. **Myeloid metaplasia:** Secondary carcinoma of bone, myelofibrosis, multiple myeloma
9. **Genetic abnormalities:** Sickle cell disease

## Differential diagnosis of Hepatomegaly

1. **Malignancy of stomach:** malignancy of stomach particularly involving greater curvature of the stomach. The abdominal mass, although usually palpable in the epigastrium, may also be felt in the left upper, right upper or lower quadrant of abdomen depending upon the location of tumour in the stomach. A stomach tumour is usually movable, tender and tends to display visible peristalsis even when its borders are ill-defined.
2. **Carcinoma of transverse colon:** It is characteristically hard, nodular and mobile (unless fixed by adhesions) whenever palpable, in case it causes intestinal obstruction, there is usually audible or visible peristalsis with abdominal distension or tympanitis.
3. **Kidney tumour:** A massive tumour arising from the right kidney is usually smooth and rounded, gives a tense or elastic feel to the palpating hand, occupies a lateral position and is bimanually palpable swelling.
4. **Omental mass:** A thickened or rolled-up greater omentum, secondary to tuberculous peritonitis, usually presents a tender, sausage shaped lump, which hardly moves with respiration; there is usually a band of resonance demonstrable between it and the lower border of the liver, while tuberculous glands are frequently demonstrable elsewhere within the abdomen.

## Intestinal Obstruction

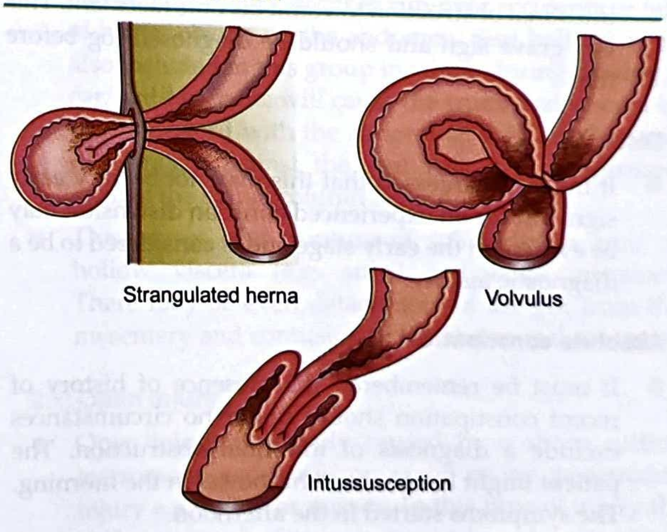


Figure 77: Images of different varieties of intestinal obstruction

Intestinal obstruction is another major condition where in we can observe the distension of the abdomen. This could be acute or chronic. The acute intestinal obstruction is considered to be a case of acute abdomen. The mortality rate from acute intestinal obstruction rises with each passing hour from the onset of the disease, so early diagnosis is very much essential. The three main clinical manifestations of acute intestinal obstruction are intestinal colic, vomiting and distension of the abdomen. The absolute constipation (obstipation) is considered to be one of the cardinal features should be excluded as it important symptom.

- Generalized appearance of sepsis and systemic upset become apparent. On examination, epigastric and flank tenderness can be elicited. The abdomen may be slightly distended and on auscultation there will be diminished peristaltic sound.

## Small intestine

- Rupture of small intestine may also occur from blunt injury or penetrating injury to the abdomen. In case of penetrating injury the symptoms and signs are more or less like penetration of peptic ulcer. In case of blunt injury, the symptoms and signs may not appear early and this delay is due to appearance of traumatic necrosis involving the parts of the injured intestine.
- The fixed parts of the small intestine are more vulnerable to blunt injury particularly when the blow impinges these parts against the vertebral column. It is the first tow feet of jejunum and last two feet of terminal ileum which are most vulnerable to closed traumatic rupture. Early diagnosis is highly important.
- The time interval between the perforation and development of peritonitis depends on the size of the rupture, whether the perforation occurs into the free peritoneal cavity and on the character of the intestinal contents. Pointing test is an important sign in identifying rupture of intestine.
- The patient is asked to point which is the most painful area or where the pain started. This often indicates the site of perforation. London sign indicates pattern of bruising of the skin (i.e. an imprint of clothing or a seat belt noted on the skin) with the type of crushing force applied to the abdomen against the vertebral column.
- Local tenderness is highly important as it often indicates the site of rupture. Rebound tenderness means peritonitis has set in due to rupture of small intestine.

## Large intestine

- Rupture of large intestine may be intraperitoneal or extraperitoneal. Rupture of ascending and descending colon may be intra or extraperitoneal, whereas rupture of transverse and sigmoid colon is often intraperitoneal.
- Intraperitoneal rupture will lead to severe peritonitis as the contents of large intestine are highly infective. The condition is lethal. Radiography may be helpful in detecting large pneumoperitoneum suggests escape from the predominantly gas containing large intestine.
- Extraperitoneal injury will lead to spreading cellulitis and surgical emphysema in the loins.

## Kidney

- Renal injuries can be classified into slight, severe and critical. Slight injuries comprise those where the parenchyma is damaged without rupture of the capsule or extension of the laceration into the renal pelvis or calyx.
- This also includes a contusion of the cortex of the kidney without tear of the capsule and this produces a subcapsular haematoma. This condition does not haematuria, but slight tenderness at the renal angle can be elicited. Severe injuries are those where the capsule is broken, renal pelvis or calyx is distorted.
- This produces haematuria or a mass in the loin from a perirenal haematoma. There may be clot colic. There may be leakage of urine in the retroperitoneal tissue. Perinephric haematoma is suspected when there is flattening of the normal curvature of the loin. In many cases of renal injuries, there will be generalized abdominal distension (meteorism) which is caused by retroperitoneal haematoma pressing on the splanchnic nerves. One must continue to examine the urine for haematuria both macroscopic and microscopic.
- If haematuria gradually ceases, it is a good sign but the patient should be kept at rest for a few days or more as such cessation of haematuria may be due to occlusion of ureter by blood clot. A critical injury is such when the kidney is shattered or there is a tear in the renal artery or one of its branches. The patient rarely survives after this type of injury.
- Delayed rupture is very rare, though is occasionally seen in renal injury. A patient who after injury did not reveal any sign of kidney injury suddenly suffers from profuse haematuria usually between 3rd and 5th days of accidents. This usually occurs due to some movement which dislodges the clot into the renal pelvis. So rest in bed is extremely important even when minimum injury to kidney is suspected.

## Urinary bladder

- This may be injured intraperitoneally or extraperitoneally. The rupture is extraperitoneal in 90% of the cases. Intraperitoneal rupture can only occur when someone is drunk so that his abdominal musculature remains relaxed during the blow and the bladder is full.
- Symptoms of ruptured bladder are usually marked due to multiple injuries and shock. A question must be asked 'Has he passed the urine since the accident?'.
- **Extraperitoneal rupture:** It is usually associated with fractured pelvis. This is ascertained by compression test by compressing the pelvis laterally inwards or by distraction test by distracting the pelvis. Fracture is indicated by pain. Extravasation occurs into the

to the hollow viscus. Internal haemorrhage produces certain general signs which are common for injury to any viscus inside the abdomen. But the local signs depend on the injury to the concerned viscus.

- In case of internal haemorrhage, increasing pallor, restlessness, small thready pulse, deep and sighing respiration (air hunger), subnormal temperature and collapse are the general signs. Specific signs are discussed below:

### Liver

- In case of injury to the lower part of the chest on the right side one may suspect of ruptured liver. Liver injury may occur as a result of penetrating wound by stabbing or bullet injury.
- Right lobe is more commonly injured (5:1) than the left lobe as it is less mobile and large. Patients complains of pain in the right upper quadrant of the abdomen.
- Occasionally, when the central part of liver is ruptured, bleeding occurs into the large radicles of the biliary tree so that liquid blood is carried along the bile passages into the duodenum and there is haemetemesis.
- Examine for tenderness and rigidity in the right hypochondriac region. Look for increased area of dullness, shifting dullness and silent abdomen.

### Spleen

- Injury to spleen is usually caused by closed (blunt) injury left upper quadrant injury and only occasionally it may be caused by penetrating injury to the lower costal margin.
- This is more common in tropical countries where spleen is diseased by malaria. Rupture of spleen manifests itself in one of the three following types –
  1. The patient succumbs rapidly.
  2. There are immediate signs of rupture (commonest type).
  3. Delayed type.

1. **The patient succumbs rapidly** – This occurs due to tearing of the splenic vessels and complete avulsion of the spleen from its pedicle. This leads to catastrophic internal haemorrhage and becomes fatal within minutes.
2. **There are immediate signs of rupture (commonest type)** – This is the commonest group seen in present clinical practice or surgical practice. There are signs of initial shock when it may not be possible to state precisely which organ has been damaged. Gradually this initial shock is recovered and the signs of intra-abdominal bleeding caused by ruptured spleen will become evident. After moderate intra-abdominal haemorrhage, adequate clotting occurs to control the haemorrhage temporarily. Thus when the patient is first seen the general signs (which are discussed earlier in this chapter) may not be that alarming, but the local signs become more important to come to a diagnosis.
   - **Local signs:** There are tenderness and muscle guard over the left upper quadrant.
   - Abdominal distension (meteorism) gradually appears about 3 to 4 hours after the accident. It is due to paralytic ileus.
   - **Kehr's sign:** Pain is referred to the left shoulder due to irritation of the left half of the diaphragm by splenic blood. There may be hyperaesthesia in the area of left shoulder. This sign may be demonstrated by elevating the foot of the bed for 15 minutes by which time blood will accumulate below the left cupula of the diaphragm.
   - **Presence of shifting dullness in the flanks is fairly common. Ballen's sign:** Persistent dullness on the left side of the abdomen due to early coagulation of splenic blood. Even at this stage, shifting dullness is present on the right side.
   - Rectal examination may reveal tenderness and sometimes a soft swelling due to presence of blood or clot in the rectovesical pouch.
   - Saegesser's splenic point is the point in the lower part of the posterior triangle of the neck between the left sternocleidomastoid and the scalenus medius muscles above the clavicle. Application of pressure on this point will give rise to severe pain.
3. **Delayed type:** In this type, following the accident, there is period of comparative freedom of symptoms for a few days (15 days or more). After which the patient is often readmitted with well marked signs of internal haemorrhage.

### Mesentery

- Both closed and open injury can in mesenteric laceration. As expanding haematoma which compresses the arterial arcade may threaten the visibility of segment of intestine.
- So after injury to the abdomen when tenderness and rigidity persist and the patient's condition gradually deteriorates in spite of good resuscitative treatment one should immediately consider of opening the abdomen.

### Duodenum

- The intraperitoneal rupture gives rise to the similar clinical picture as perforation of peptic ulcer. Retroperitoneal ruptures are more difficult to detect.
- Symptoms develop a few hours or even a day after injury. Severe pain in the epigastrium, in the back associated with intractable vomiting is the most

elderly, the onset is gradual (so it is often said to be chronic). Pain is not very prominent. If present it is complained of in the hypogastrium.

- Vomiting is a very late feature and it may not be present altogther. Distension is more marked on the flanks.
- Careful palpation of the right iliac fossa may reveal the caecum to be distended and may harden under the examining finger. Rectal examination may reveal an annular growth.

### Nature of obstruction

- Intestinal obstruction may be simple or strangulated and dynamic or paralytic. In simple obstruction, there will be intestinal colic.
- Pulse, respiration, temperature and blood pressure remain unaffected. On palpation, muscle rigidity and rebound tenderness are conspicuous by their absence.
- In strangulation, however, there is no complete remission of pain between colics. So colicky pain of simple obstruction is replaced by a continuous pain.
- Pulse becomes rapid, temperature may be elevated, there may be tachypnoea and blood pressure falls from the beginning.
- Presence of muscle rigidity and rebound tenderness immediately make the diagnosis. Two hours gastric suction if fail to relieve pain indicates intestinal strangulation.
- Though external strangulation is easier to diagnose by tense, tender and irreducible swelling without any impulse on coughing, yet internal strangulation is not so easy to diagnose and must be looked for.

### Paralytic ileus

May occur in the early post-operative period after an abdominal operation or as a complication of diffuse peritonitis. It is differentiated from dynamic intestinal obstruction by

- History of abdominal operation or features of peritonitis are present
- Gradual distension of the abdomen without visible peristalsis
- Absence of colicky pain
- Silent abdomen on auscultation

### Cause of obstruction

- In determining the cause of obstruction, age of the patient should be taken into consideration first. In the new born, cause of obstruction is congenital malformation e.g. congenital atresia of oesophagus, congenital pyloric stenosis or meconium ileus, congenital atresia of duodenum or ileum.
- In infancy, intussusception and obstruction due to worms.
- In adolescence, besides, intussusception band or adhesion resulting from Meckel's diverticulum or local peritonitis due to appendicitis, tubercular peritonitis etc.
- In adults, obstruction by band, volvulus or growth should be considered whereas in the old, carcinoma of the colon is the usual cause. A strangulated hernia can occur at any age.

## Injury to the abdomen

Abdominal injuries can be broadly classified into two groups –

1. Closed (brush or crush) injury and
2. Open (penetrating or stab) injury.

### 1. Closed injury

- Closed injury is caused by compression force such as falling from height, blow by a fist or by blunt instruments e.g. lathi.
- Crush injuries may occur in run-over accidents or fall of heavy objects on the abdomen. Seat belt injury is also included in this group in which during driving a car, sudden brake will cause the trunk and viscera to move forward with the abdominal wall and become decelerated against the seat belt and compressed against the spinal column behind.
- This causes even rupture of solid viscera and/ or hollow viscera (e.g. small and large intestine). There may be even detachment of the gut from the mesentery and contusion of the abdominal contents.

### 2. Open injury

- Open injury is usually caused by a sharp cutting instrument e.g. knife or razor or by penetrating injury e.g. bullet or missile. In this type of injury the peritoneal cavity is exposed outside and peritonitis is almost inevitable.
- The intra-abdominal organ which may be injured by such injury depends on the site of this penetrating wound. As for example, stabl injury to the right upper quadrant of the abdomen may injure the liver.
- The main concern of abdominal injury is injury to the viscera inside the abdomen. This often causes internal hemorrhage[57] and/or peritonitis from injury

---

[57] तत्रान्तर्लोहितं पाण्डुं शीतपादकराननम्॥ शीतोच्छ्वासं रक्तनेत्र मानद्धं च विवर्जयेत्॥ Su.Chi. – 2/51

When there is internal haemorrhage, yellowish white discolouration of the body, coldness of the palms, soles and oral cavity, cold expiration, reddish discolouration of the eyes, distension of the abdomen are the features as per Sushruta.

takes no less than 24 hours to develop the symptom. The following are different forms of intestinal obstruction.

### Intestinal colic

- When obstruction lies in the jejunum or high in the ileum the colics appear in waves at intervals of 3-5 minutes. The pain lasts for about 30 seconds.
- The interval becomes longer in obstruction of terminal ileum where it is about 8-10 minutes. The site of pain will give an indication as to the site of obstruction e.g. small intestinal cramps are referred to the epigastrium or umbilical region whereas colonic cramps to the lower abdomen (hypogastrium).

### Vomiting

- This a fairly constant symptom. The frequency of vomiting depends on the site of obstruction. In upper small bowel obstruction vomiting is much more frequent than obstruction in the terminal part of the small intestine.
- At first the vomitus is the gastric content i.e. ingested food particles and fluid, next it is the content of the duodenum, which is predominantly bile and lastly it is the content of the small intestine above the site of obstruction.
- Virtually it takes about 3 or 4 days in complete intestinal obstruction to vomit become faeculant. This is a grave sign and should be diagnosed log before this.

### Distension

- It must be confessed that this may not be very early sign. But for an experienced clinician distension may be evident in the early stage and is considered to be a diagnostic feature.

### Absolute constipation

- It must be remembered that absence of history of recent constipation should under no circumstances exclude a diagnosis of intestinal obstruction. The patient might have moved his bowel in the morning. The symptoms started in the afternoon.
- For constipation to arrive as a significant sign one has to wait for another 24 hours. This only makes the diagnosis late in case one includes constipation to be one of the four major signs of this condition. Again absolute constipation appears later in the process as it means failure of passage of both faeces and flatus.
- To add to more infusion intestinal obstruction may be accompanied by diarrhoea. Mesenteric vascular occlusion, Richter's hernia and pelvic abscess associated with obstruction by adhesion will produce diarrhoea instead of constipation.

### Dehydration

- The higher is the obstruction more will be dehydration due to tremendous loss of water and electrolytes. To the contrary obstruction of the terminal ileum is associated with relatively small amount of loss of fluid and electrolytes as the secretions of gastro intestinal tract are reabsorbed. As a matter of fact dehydration appears late in obstruction of the terminal ileum but the distension becomes pronounce whereas in obstruction of the jejunum dehydration appears earlier but distension is much less.
- On examination the patient looks anxious and restless. In the early stage, pulse, respiration and temperature show no deviation from normal. Inspection rarely show distension in the early stage, but a little fullness cannot be missed by an experienced clinician. Distension either central (small intestinal obstruction) or peripheral (large intestinal obstruction) or regional (volvulus of sigmoid colon etc).
- Visible peristalsis can be another sign which indicates intestinal obstruction. We have to inspect the different hernial sites – inguinal, femoral, umbilical area. On palpation, we can observe muscle rigidity and rebound tenderness which suggest intestinal strangulation. Percussion is of little value. Auscultation is very important technique, but often missed. Presence of borborygmi may indicate intestinal colic and silent abdomen indicates paralytic ileus.
- Straight X ray of the abdomen is very diagnostic. It shows gas distended loops of the intestine and multiple fluid levels.
- After diagnosing the case of intestinal obstruction, we need to identify the site, nature and cause of obstruction.

### Site of obstruction

- In high intestinal obstruction, vomiting is early and profuse. The vomitus consists of gastric fluid in the beginning and bile later on. Faeculent vomiting is rarely seen. The patient becomes dehydrated very soon. The urine is scanty.
- Though distension is not marked feature, yet fullness of the epigastrium is often noticed. In this category, acute dilatation of the stomach and pyloric stenosis may be included. In low small intestinal obstruction, the onset is sudden. Pain is situated over the umbilical region.
- The vomiting is present but it is neither early and nor profuse. In early stage, the vomitus consists of gastric content later on bile and becomes faeculent in the last stage. Distension is marked and is central, visible peristalsis is in the form of ladder pattern, is often noticed.
- In large intestinal obstruction, the patient is usually

prevesical space. After a few hours, there will be increasing tenderness over the lower abdomen and the pulse rate will rise.

- These factors in association with failure to pass urine and no evidence of bladder distension will confirm the diagnosis.
- This condition is often confused with rupture of membranous part of urethra. This is differentiated by rectal examination in which the prostate may not be palpable as it is displaced upwards in rupture of membranous part of urethra (Vermooten's sign) and some amount of blood will definitely leak from the urethral meatus in the latter condition.
- **Intraperitoneal rupture:** In this condition, the physical findings are those of peritonitis. Patient complains of agonizing pain and is often accompanied by severe shock.
- There will be varying degree of abdominal rigidity and a few hours later abdomen becomes obviously distended.
- Though the patient has not passed urine he does not show any intention whatsoever to do so. There is no dullness just above the pubis as the bladder is not distended.
- But tenderness will be present in the hypogastrium. Shifting dullness is usually present. Rectal examination reveals bulged rectovesical pouch.

## Ascites

- The term ascites refers to the accumulation of free fluid in the peritoneal cavity. Over 1,500 ml of fluid should be collected in the peritoneal cavity before its presence can be felt by physical examination.
- This is usually because of the large size of abdomen and its many recesses. A symmetrical bulging of the flanks of abdomen in recumbent posture and bulging of the lower abdomen in erect posture indicate the diagnosis of ascites. **(see Figure 78)**

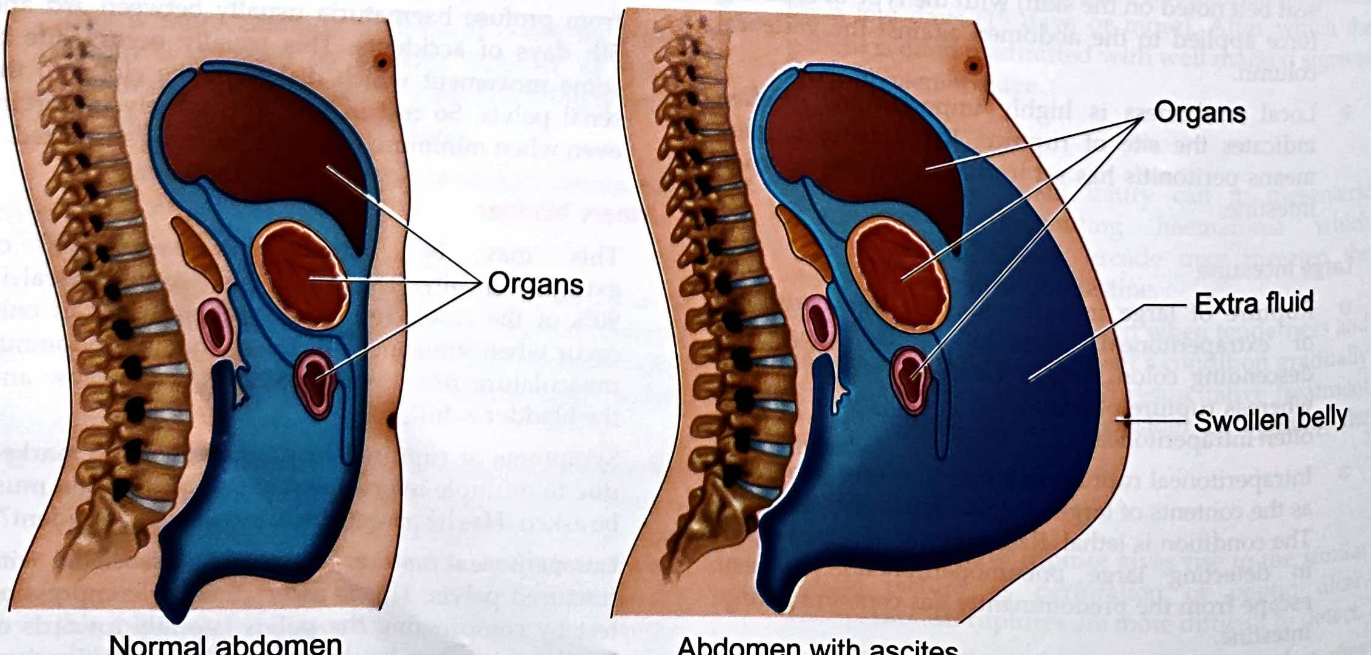
### Diagnosis of the ascites

It is done by

1. Fluid thrill test
2. Shifting dullness
3. Horseshoe shaped dullness
4. Puddle sign in case of minimal accumulation of ascitic fluid in peritoneal cavity as little as 120 ml peritoneal fluid.

### Causes of ascites

- **Ascites not associated with peritoneal disease**
  - **Intrahepatic sinusoidal portal hypertension**
    1. Cirrhosis of liver
    2. Acute liver failure
    3. Massive liver metastasis
  - **Extrahepatic sinusoidal portal hypertension**
    1. Congestive cardiac failure
    2. Constrictive pericarditis
    3. Budd Chiari syndrome
  - **Hypoalbuminemia**
    1. Nephrotic syndrome



Normal abdomen

Abdomen with ascites

**Figure 78:** Image of normal abdomen and abdomen with ascites

2. Protein losing enteropathy

➤ **Miscellaneous disorders**

1. Myxoedema
2. Ovarian disease
3. Pancreatic ascites
4. Bile ascites
5. Chylous ascites
6. Nephrogenic ascites

- **Ascites caused by primary peritoneal disease**

➤ Malignant ascites

➤ Tubercular ascites

➤ Fungal and parasitic peritonitis

➤ Sarcoidosis

➤ Vasculitis

➤ **Miscellaneous peritoneal diseases**

1. Eosinophilic gastroenteritis
2. Whipple's disease
3. Endometriosis

## Mechanism of ascites

The mechanism of production of ascites depends greatly on the etiological factor or factors present. It is possible that more than one pathological process may take place in an individual who is presented with ascites.

1. **Inflammation –** Irritation of the peritoneum by inflammation leads to increased permeability of capillaries and transudation of fluid into the peritoneal cavity and reabsorption of intraperitoneal fluid is reduced either because of oedema of the peritoneal membrane or because of increased protein concentration in ascitic fluid.
2. **Peripheral arterial vasodilatation –** This is the ideal mechanism occurs in the patients of cirrhosis of liver. Due to the cirrhosis of liver, there will be the commencement of portal hypertension which occurs as a backflow of the blood from the liver into portal vein. This in turn leads to the backflow of blood into splenic vein and superior mesenteric vein thus the patient may present with loss of appetite, hematemesis due to oesophageal varices, bleeding per rectum owing to internal hemorrhoids.
3. **Lymphatic obstruction –** Involvement of the mesenteric lymphatics, receptaculum chyli or thoracic duct leads to the chylous ascites as a result of blockage of lymphatic drainage.
4. **Ruptured viscus –** Rupture of an intra-peritoneal organ by causing an outpouring of blood, cystic fluid or contaminated material from the colon results in collection of fluid within the peritoneal cavity.

## Differential diagnosis of ascites

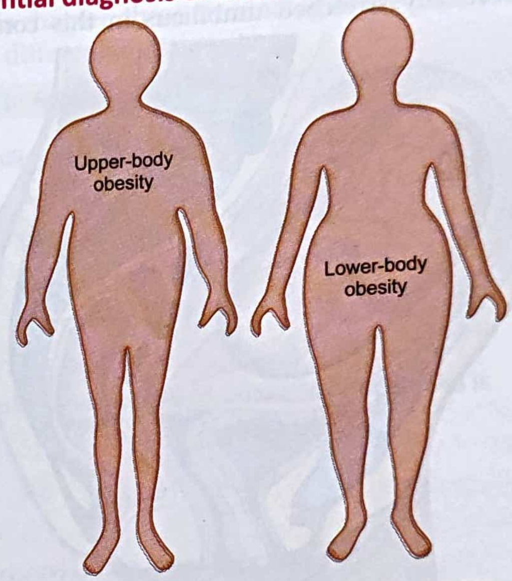


**Figure 79:** Apple and pear shaped obesity

1. **Obesity:** The protrusion of abdomen in obesity is symmetrical and out of proportion to the rest of the body; the navel is depressed and the transverse cutaneous folds of the abdominal wall exaggerated. In extreme obesity, the fat may hang in front like an apron with protrusion of the flanks and suprapubic region. In obesity, there is no shifting dullness or fluid wave. **(see Figure 79)**
2. **Gaseous distension:** There is no bulging of the flanks, the abdomen will have tympanic note all over the abdomen. **(see Figure 80)**

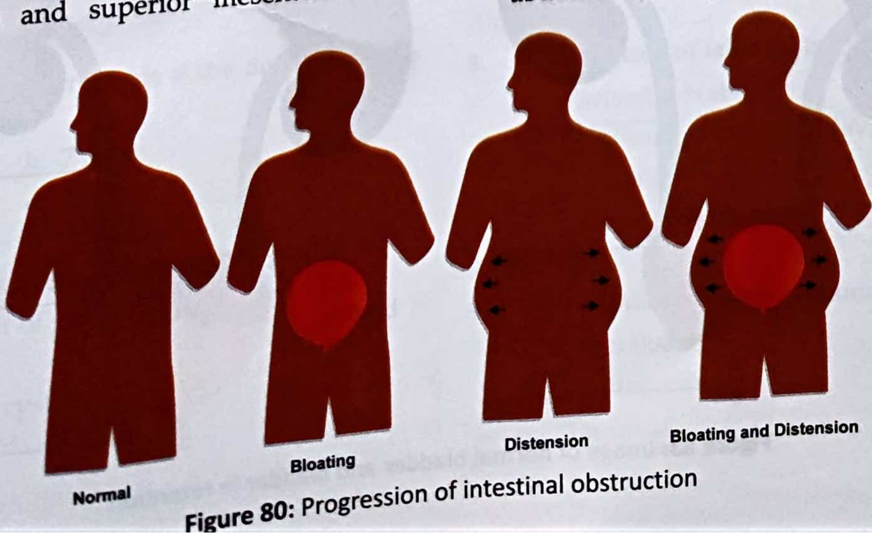


**Figure 80:** Progression of intestinal obstruction

3. **Pregnancy:** The gravid uterus usually causes symmetrical bulging of the abdomen with anteroposterior diameter of the abdomen markedly increased and the maximum girth of the abdomen below the umbilicus. In ascites, maximal bulging is towards the flanks of abdomen and maximum girth of abdomen is above umbilicus. In pregnancy, dullness on percussion is centrally located, with tympany at the flanks. Changes in posture produce little or no change in percussion note. **(see Figure 81)**

4. **Ovarian cyst:** The lady with ovarian cyst will have generalized abdominal swelling. The maximum girth of the abdomen is below the umbilicus. There will be vertically stretched umbilicus in this condition, whereas in ascites, there will transversely stretched umbilicus is seen which is also termed as smiling umbilicus. Outline of upper border of the of dullness can be visible during respirations and this sign is not seen in the patient of ascites. **(see Figure 82)**

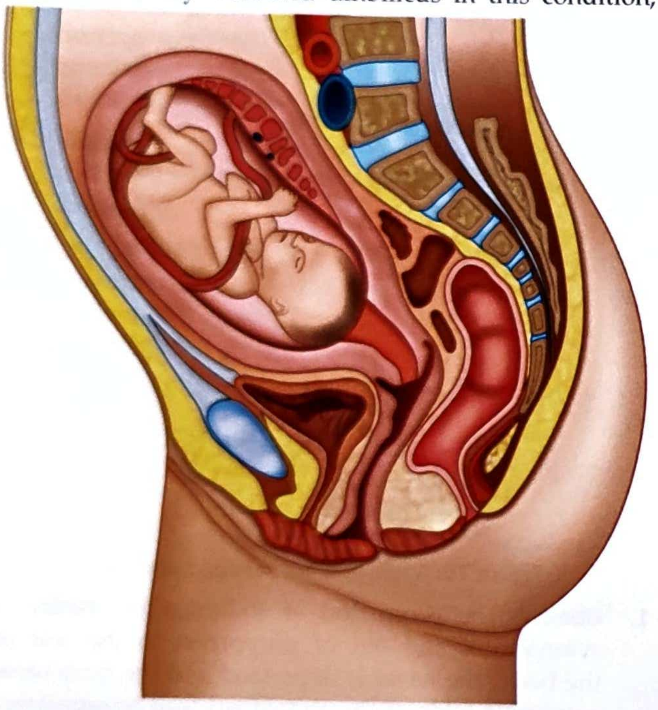


**Figure 81:** Abdominal swelling in pregnancy

5. **Visceroptosis:** In generalized visceroptosis, the abdominal wall has a tendency to bulge laterally or in the flanks in the recumbent posture, in hypogastric region in upright posture.

6. **Splenomegaly:** Swelling more commonly seen in left hypochondriac region where we can observe the notch in the anterior border of the spleen in huge splenomegaly.

7. **Distended bladder:** A massive overdistension of the urinary bladder leads to the swelling of the suprapubic region. In this condition, the direction of umbilicus is towards upwards. There will be dullness on percussion. Swelling is localised swelling. **(see Figure 83)**

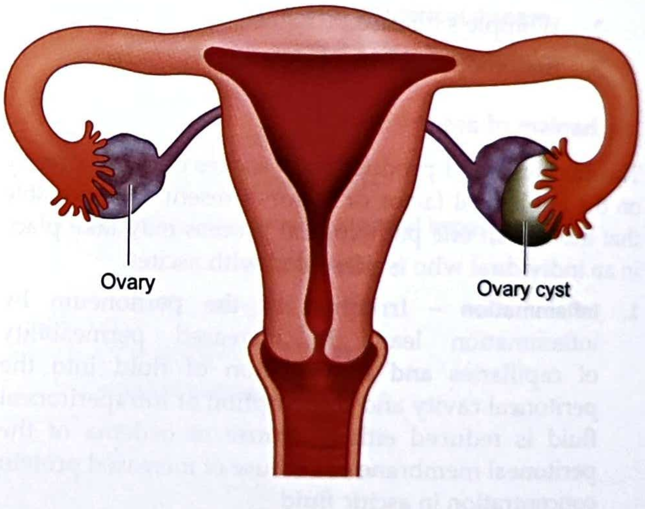


**Figure 82:** Ovarian cyst

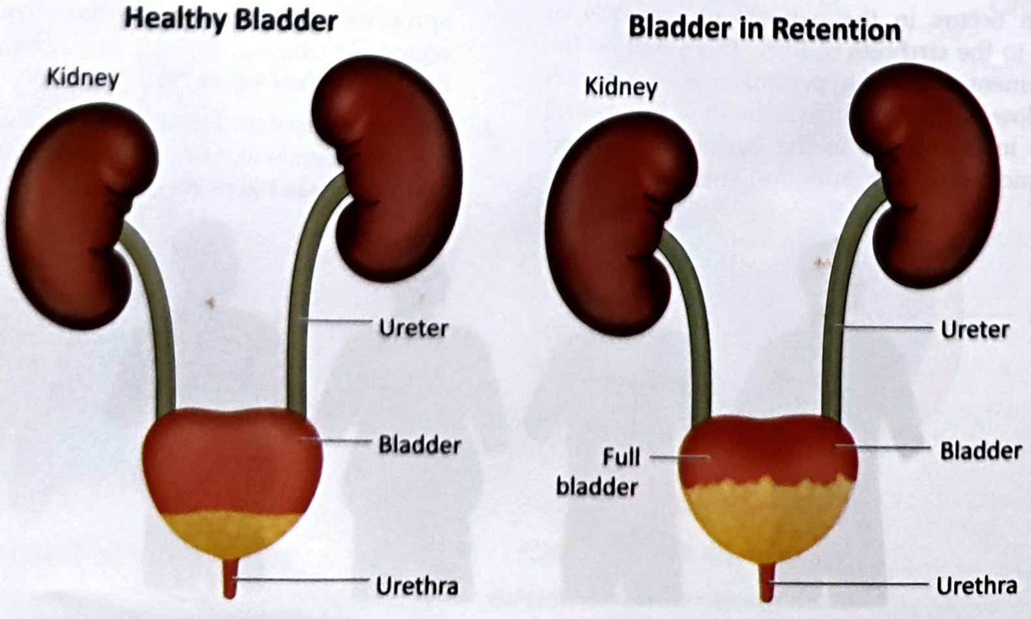


**Figure 83:** Image of normal bladder and bladder in retention

## Key summary of the chapter

उदरोत्सेधसाधर्म्योंदुदर Madhu, Ma.Ni. – 35/1

- As far as Pratyatma Lakshana of Udara is concerned, any general swelling of the abdominal region is considered as Udara. This is different from Gulma as latter disease is a localised swelling in the abdominal region.
- Mandagni or Agnimandya is considered to be the major aetiological factor in the manifestation of Udara. Apart from this, indulgence in Papakarma (socially unacceptable activities) and excess vitiation of Dosha in the diseased individual are the usual causative factors of the Udara manifestation.
- As far as Sankhya Samprapti of Udara is considered, 8 types of Udara are mentioned – Vataja, Pittaja, Kaphaja, Sannipataja, Yakriddalyudara, Baddhagudodara, Kshatodara and Jalodara. Among these, Jalodara is considered to be Asadhya in nature by default.
- Hepatomegaly is considered as the swelling of the liver. Splenomegaly refers to the swelling of the spleen. Ascites refers to the accumulation of fluid in the peritoneal cavity. In this chapter, these terminologies are explained along with the probable causes, clinical features and examination and differential diagnosis.

## Self-Assessment: Questions for Review

### Long essay questions

- Explain Udara in detail
- Describe the Nidana Panchaka of Udara in detail
- Explain Nidana, Samprapti, Purvarupa, Rupa, Pratyatma Lakshana, Bheda, Sadhyasadhyata of Udara.

### Short essay questions

- Explain the stages of Jalodara
- Explain Yakriddalyudara
- Explain the Samprapti Ghataka of Udara
- Explain Sadhyasadhyata of Udara
- Explain ascites in detail
- Explain hepatomegaly in detail

### MCQs

**1. Which of the following is used to test minimal amount of ascites?**

a. Fluid thrill test;
b. Shifting dullness;
c. Horse shoe shaped dullness;
d. Puddle sign

*Answer*: (d)

**2. Baddhagudodara is not treatable if the duration of the illness is more than**

a. 1 day;
b. 7 days;
c. 15 days;
d. 4 days

*Answer*: (c)

**3. Bulging in the flanks of the abdomen is suggestive of**

a. Third trimester of pregnancy;
b. Ascites;
c. Large ovarian cyst;
d. Umbilical hernia

*Answer*: (b)

**4. Smiling umbilicus is specifically seen in**

a. Ascites;
b. Large ovarian cyst;
c. Umbilical hernia;
d. Epigastric hernia

*Answer*: (a)

**5. Sankhya Samprapti of Udara as per Charaka is**

a. 5;
b. 8;
c. 10;
d. 12

*Answer*: (b)

**6. Parisravi Udara is another name of**

a. Sannipataja Udara;
b. Jalodara;
c. Baddhagudodara;
d. Chidrodara

*Answer*: (d)

**7. Swelling below the Nabhi region is observed in**

a. Baddhagudodra;
b. Jalodara;
c. Parisravi Udara;
d. Plihodara

*Answer*: (c)

**8. The symptom of Jalodara is**

a. Parivritta Nabhi;
b. Swelling between Hridaya and Nabhi;
c. Swelling below Nabhi;
d. None of the above

*Answer*: (a)

**9. The symptom of Asadhya Jalodara is/are**

a. Shunaksha;
b. Kutilopastha;
c. Tanutvak

d. All of the above

*Answer*: (d)

**10. Which of the following test is done to determine the fluid in the peritoneal cavity?**

a. Puddle sign;
b. Femoral nerve stretch test;
c. Murphy's sign;
d. Cullen's sign

*Answer*: (a)

**11. Vertically stretched umbilicus is the sign of which of the following?**

a. Ascites;
b. Large ovarian cyst;
c. Splenomegaly;
d. Intestinal obstruction

*Answer*: (b)

**12. The minimum amount of fluid present in peritoneum to confirm the diagnosis of ascites is**

a. 500 ml; b. 50 ml;
c. 120 ml; d. 1,000 ml

*Answer*: (c)

**13. Which of the following is not responsible for the manifestation of splenomegaly?**

a. Cirrhosis of liver;
b. Congestive cardiac failure;
c. Malaria;
d. Typhoid

*Answer*: (d)

**14. Which of the following sign is absent in the patient of ascites?**

a. Wide stretch marks on the lower abdomen;
b. Tranversely stretched umbilicus;
c. Flanks stretched laterally;
d. Cullen's sign

*Answer*: (d)

**15. Which of the following is not showing colicky abdominal pain?**

a. Blocked gall stone in the common bile duct;
b. Impacted renal stone in the renal pelvis;
c. Impaction of small part of faeculant material to the appendix;
d. Ascites

*Answer*: (d)

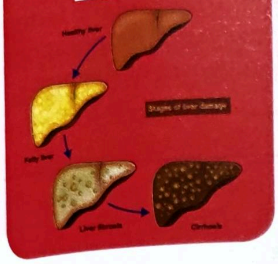
## Chapter resources

- https://www.researchgate.net/figure/Generalized-distension-of-the-abdomen-is-evident_fig1_45952464
- Charaka Samhita, Chikitsa Sthana – 13th chapter – Udara Chikitsa Adhyaya
- Physical diagnosis – a textbook of symptoms and physical signs by Rustom Jal Vakil and Aspi F Golwalla 13th edition, MPP (Media Promoters and Publishers) Pvt. Ltd, Mumbai, 2010
- A manual on clinical surgery by S Das, 4th edition, Published by S Das, Calcutta, 1998
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.sciencedirect.com
- www.healthgrades.com
- www.smileshospitals.com
- www.myhealth.alberta.ca
- www.monashfodmap.com
- www.cancerclinix.com
- www.srinarayanamedicalcentre.com
- www.medical-artist.com

***

CHAPTER

28



# Hepatobiliary Diseases

## Learning Objectives

- ⇨ To have a brief introduction of hepato biliary diseases
- ⇨ To know the clinical features of liver cirrhosis, alcoholic liver disease (ALD), and non alcoholic liver disease (NALD), hepatitis, jaundice, ascites
- ⇨ To know about the necessary physical examinations to be performed in above said diseases
- ⇨ To know about the investigations to be ordered in the confirmation of above said diseases
- ⇨ To know about the differential diagnosis of above said diseases

## Introduction

Hepatobiliary system comprises liver and gall bladder and conducting ducts for the transport of bile from the liver to duodenum. Liver is one of the major organ which maintains most of the activities of human body in terms of metabolism, storage, formation of plasma proteins, excretion of metabolites etc. Depending upon the nature of aetiological exposure, the hepatobiliary system may show abnormal functions which can be learnt by observing specific clinical features which are pertaining to the hepatobiliary system such as icterus (yellowish discolouration of skin, sclera, tongue and mucous membranes) or pain in right upper quadrant or haematemesis or malena or ascites or certain signs such as spider naevus or palmar erythema or marks of itching on the skin with yellowish discolouration. As hepatobiliary system will be functioning coherently with other systemic bodily functions, this system will also be afflicted with pathological events like other bodily systems which show symptoms such as fever, weight loss etc. Diagnosis of these dysfunctions can be done by CBC, liver function tests (LFT), imaging studies. The following chapter will be discussing some of the important pathological processes happening in and around hepatobiliary system.

## Cirrhosis of Liver

Before discussing the cirrhosis **(see Figure 84)** of liver, we have to understand the term fibrosis of liver. Hepatic fibrosis is overly exuberant wound healing in which excessive connective tissue builds up in the liver. The extracellular matrix is overproduced, degraded deficiently or both. The trigger is chronic injury to the hepatic tissue. Fibrosis itself causes no symptoms but can lead to portal hypertension or cirrhosis results in disruption of normal hepatic architecture and liver dysfunction. Diagnosis is done by liver biopsy.

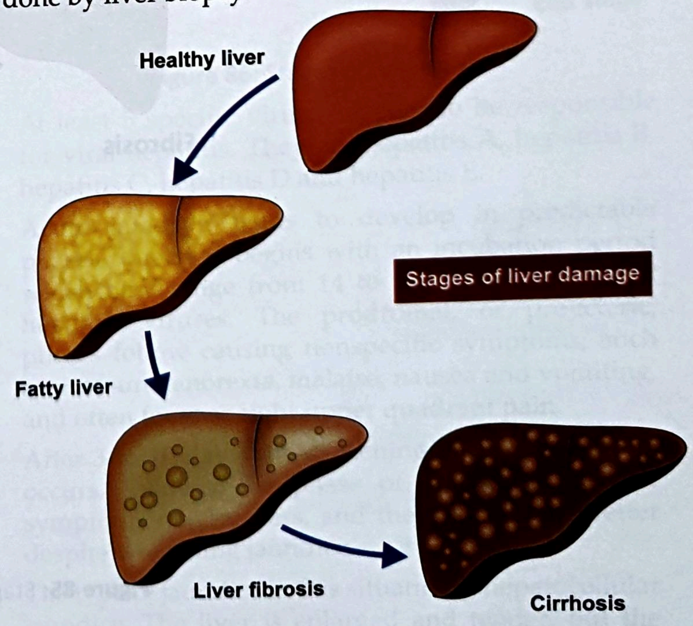


**Figure 84:** Stages of liver Damage

Cirrhosis is a late stage of fibrosis of the liver which resulted in widespread distortion of normal hepatic structural design. Cirrhosis is characterized by regenerative nodules surrounded by dense fibrotic tissue. Symptoms may not develop for years and are often nonspecific (e.g. anorexia, weight loss, fatigue). Late manifestations include portal hypertension, ascites and liver failure. Diagnosis often requires liver biopsy, while prediction of diagnosis can be inferred by ultrasound abdomen.

- Cirrhosis may be asymptomatic for years. 1/3rd of the patients may show symptoms. Often, first symptoms are non specific, they include general fatigue, anorexia, malaise, weight loss.
- Liver is palpable and firm with blunt edge, nodules are not usually palpable.
- Clinical signs may suggest a chronic liver disorder or chronic alcohol use, but are not specific for cirrhosis include muscle wasting, palmar erythema, parotid gland enlargement, clubbing, spider naevus.
- Diagnosis[1] is done by liver function tests, coagulation tests, CBC, biopsy of the liver
- Prognosis is often unpredictable. It depends on factors such as aetiology, severity, presence of complications, comorbid conditions and effectiveness of therapy.

## ALD and NALD

### Alcoholic Liver Disease

**Alcoholic Liver Disease (ALD) (see Figure 85)** is a type of hepatic dysfunction which occurs due to the excess consumption of ethyl alcohol by an individual. Disorders that occur in alcohol abusers, often in sequence include.

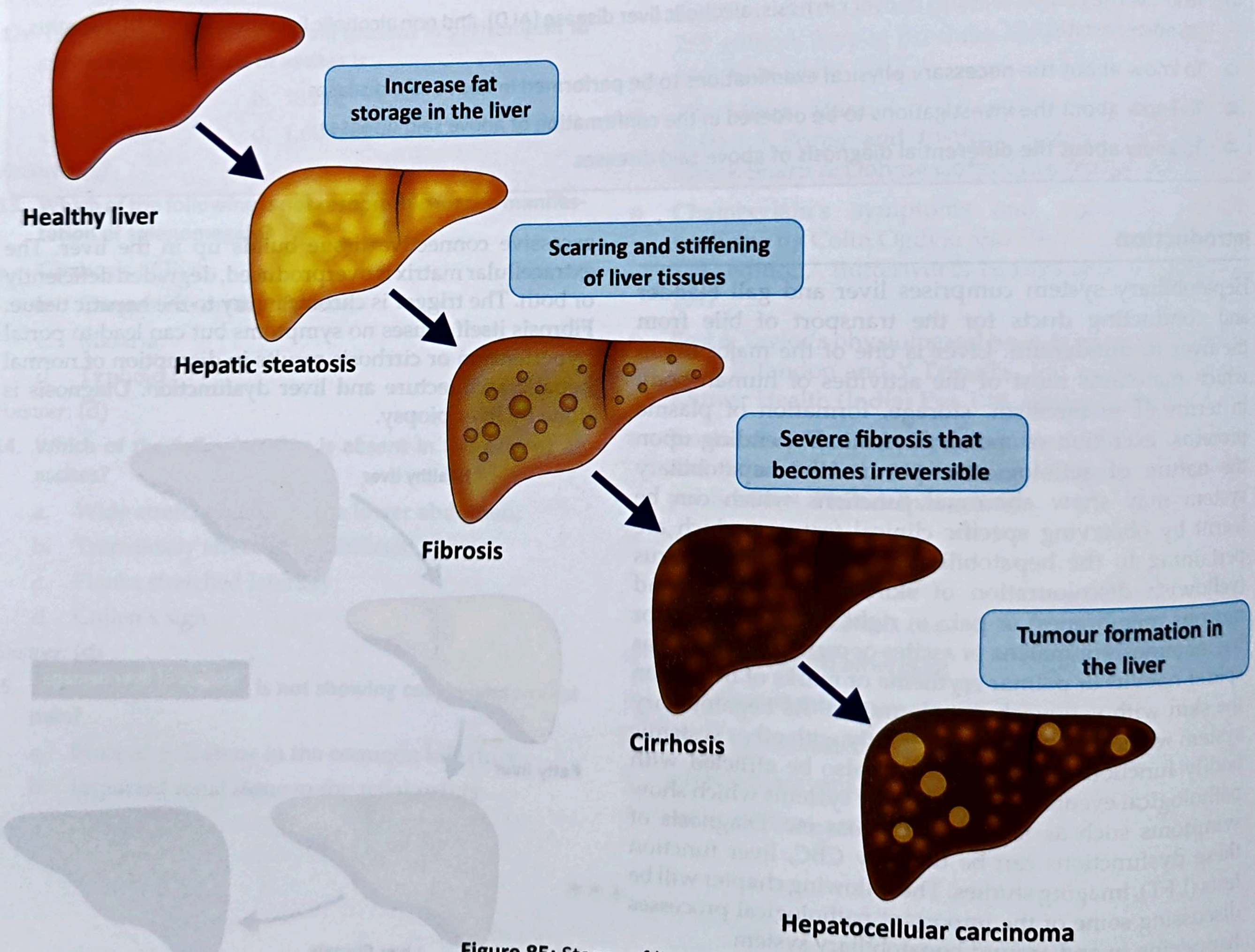

Healthy liver
Increase fat storage in the liver
Hepatic steatosis
Scarring and stiffening of liver tissues
Fibrosis
Severe fibrosis that becomes irreversible
Cirrhosis
Tumour formation in the liver
Hepatocellular carcinoma

**Figure 85:** Stages of liver damage

---

[1] SGOT and SGPT levels may moderately increased; elevated alkaline phosphatase level may imply biliary obstruction; Bilirubin is usually normal, but increases when cirrhosis becomes progressive; decreased serum albumin and prolonged PT time may help in the diagnosis of impaired hepatic synthesis. Anemia may be multifactorial either due to GI bleeding or due to deficient vitamin B12 or folic acid or due to hemolysis or due to hypersplenism

- Fatty liver (in > 90%)
- Alcoholic hepatitis (in 10 to 35%)
- Cirrhosis (in 10 to 20%)

## Non alcoholic liver disease

**Non Alcoholic Liver Disease (NALD)** is the term used for a range of conditions caused by a build-up of fat in the liver. This is usually seen in people who are overweight or obese. Early stage NALD does not cause any harm usually, but it can lead to serious liver damage, including cirrhosis, if it gets worse.

- Fatty liver, alcoholic hepatitis and cirrhosis of liver may overlap in the individuals. For better understanding, this is dealt separately in brief.
  - **Fatty liver (steatosis):** is the initial and most common consequence of excessive alcohol consumption. Fatty liver is potentially reversible. Macrovascular fat accumulates as large droplets of triglycerides and displaces the hepatocyte nucleus, most markedly in perivenular hepatocytes. This leads to enlargement of liver.
  - **Alcoholic hepatitis:** This is the combination of fatty liver and hepatic inflammation and necrosis of liver. This may vary depending upon the severity. Damaged hepatocytes become swollen. Severely damaged hepatocytes get necrosed leading to the narrowing of sinusoids and terminal hepatic venules.
  - **Cirrhosis:** There will extensive fibrosis that disturbs the hepatic structure. The amount of fat varies, alcoholic hepatitis may coexist. The hepatic regeneration produces relatively smaller nodules leading the shrinking of liver.
  - **Fatty liver is usually asymptomatic,** enlargement observed in this situation is non tender. In case of alcoholic hepatitis, the person may have fatigue, fever, jaundice, right upper quadrant pain, tender hepatomegaly. In cirrhosis, the person may have portal hypertension where in there may be the possibility of GI bleeding (haemetemesis or malena), ascites, portal systemic encephalopathy.
- In case of NALD, the above features may be observed with the negative history of ethyl alcohol intake.
- Diagnosis is done by analysing the history of alcohol intake, liver function tests and CBC.
- Prognosis is determined by the degree of hepatic fibrosis and inflammation. Fatty liver and alcoholic hepatitis without fibrosis are reversible, if alcohol is avoided. With abstinence from alcohol, fatty liver is completely reversible within 6 weeks. Fibrosis and cirrhosis phases of liver disease are irreversible.

## Hepatitis

Hepatitis **(see Figure 86)** is the inflammation of liver characterized by diffuse or patchy necrosis. Major causes are septic hepatic viruses, alcohol and drugs. In this section, most commonly occurring hepatitis due to hepatitis viruses is being discussed. Acute viral hepatitis is diffuse inflammation of liver caused by specific hepatotropic viruses. This is characterized by anorexia, nausea and often fever or right upper quadrant pain. Jaundice often develops, as other symptoms begin to resolve. Most cases resolve spontaneously but some progress to chronic hepatitis. Occasionally, acute viral hepatitis progresses to acute hepatic failure (fulminant hepatitis). Diagnosis is done by liver function tests and serologic tests to identify viruses.

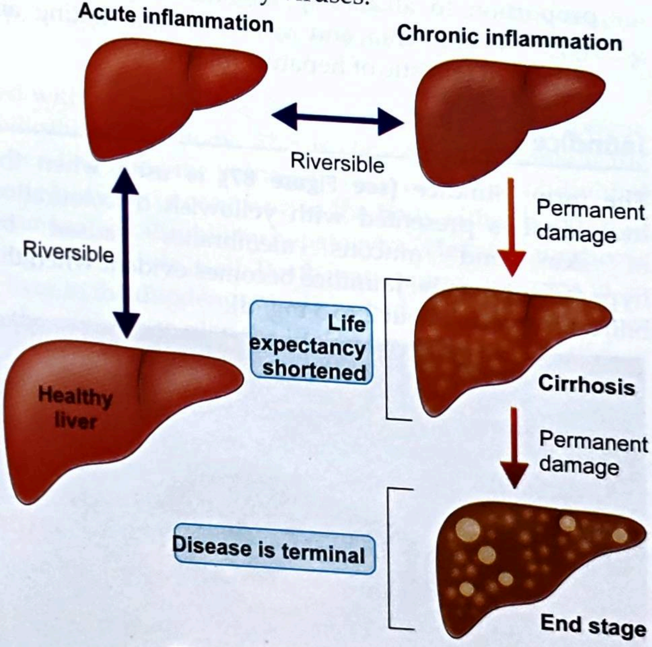


**Figure 86:** Stages of hepatitis

- At least 5 specific viruses appear to be responsible for viral hepatitis. They are hepatitis A, hepatitis B, hepatitis C, hepatitis D and hepatitis E.
- Acute infection tends to develop in predictable phases. Infection begins with an incubation period which may range from 14 to 180 days in different hepatitis viruses. The prodromal, or pre-icteric, phases follow causing nonspecific symptoms, such as profound anorexia, malaise, nausea and vomiting, and often fever or right upper quadrant pain.
- After 3 to 10 days, the darkening of colour of urine occurs, followed by phase of jaundice. Systemic symptoms may regress, and the patient feels better despite worsening jaundice.
- The type of jaundice in this situation is hepatocellular jaundice. The liver is enlarged and tender, but the edge of the liver remains soft and smooth. Mild splenomegaly occurs in 20% of the patients.

- Jaundice usually peaks within 2 to 3 weeks and then fades during a 2 to week to get recovered. Acute viral hepatitis usually resolved spontaneously 4 to 8 hours after symptom onset.
- As far as physical examination of the patient is concerned, the person will have yellowish discolouration of the ventral surface of tongue, sclera, skin and oral mucosa. On inspection, the person may have tenderness of right upper quadrant; signs of itching with marks of itching due to the deposition of bile pigment, signs of ascites in case of chronic hepatitis are seen.
- Diagnosis is done by liver function test (AST and ALT elevation out of proportion out of proportion to alkaline phosphatase); usually with hyperbilirubinemia and viral serologic testing are usually diagnostic of hepatitis infection.

## Jaundice

The term jaundice **(see Figure 87)** is used when the individual is presented with yellowish discolouration of skin and mucous membranes caused by hyperbilirubinemia. Jaundice becomes evident when the bilirubin level is about 2 to 3 mg/ dl.

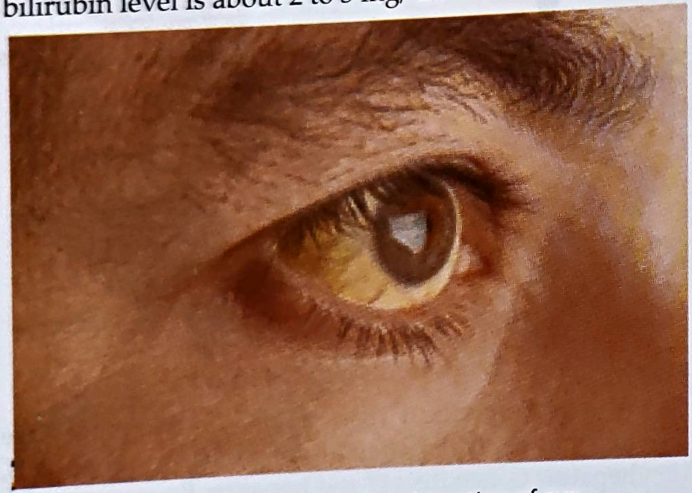


**Figure 87:** Yellowish discolouration of eye

- Most bilirubin is produced when Hb is broken down into unconjugated bilirubin. Unconjugated bilirubin binds to albumin in the blood for transport to the liver, where it is taken up by hepatocytes and conjugated with glucuronic acid to make it conjugated bilirubin which is water soluble.
- Conjugated bilirubin is excreted in the bile to the duodenum. In the intestine, bacteria metabolise bilirubin to form urobilinogen.
- Some urobilinogen is eliminated in the faecal matter and some other amount of urobilinogen is getting reabsorbed in the ileum and enters back into the liver. The process is termed as enterohepatic circulation.
- **Hyperbilirubinemia may involve**
  - Increased production of bilirubin
  - Decreased hepatic uptake
  - Decreased conjugation
  - Dysfunctional hepatocytes
  - Decreased expulsion of bilirubin from the liver to the gall bladder
  - Decreased expulsion of bilirubin from the gall bladder to the duodenum

### Major causes of jaundice

- Prehepatic causes (causes which are responsible for elevation of unconjugated bilirubin): haemolysis due to malaria or congenital spherocytosis or congenital elliptocytosis or sickle cell disease etc
- Hepatic causes such as viral hepatitis; alcoholic liver disease; hepatoma etc
- Post hepatic causes such as cholelithiasis; common bile duct obstruction; carcinoma of head of pancreas; stricture of common bile duct etc
- History of present illness should include onset and duration of jaundice.
- Hyperbilirubinemia can lead to darkening of urine before jaundice is visible.
- Therefore the onset of dark urine indicates onset of hyperbilirubinemia, more accurately than the onset of jaundice. Fever, malaise, myalgia, darkening of urine and faecal matter may appear in the body.
- Pruritus, skin itching marks and steatorrhea (passage of fat in the feacal matter) and right upper quadrant pain.
- Vital signs are review for assessment of fever, systemic toxicity (hypotension and tachycardia) has to be analysed.
- Head and neck examination includes assessment of eyes, tongue and oral mucosa.
- Abdomen is examined for the assessment of liver, ascites.

### Diagnostic approach of jaundice

- Acute jaundice in young and healthy suggests acute viral hepatitis
- Acute jaundice appears after acute drug or exposure to toxic substances
- A long history of heavy alcohol use suggests alcoholic liver disease
- A personal or family history of recurrent, mild jaundice without findings of hepatobiliary obstruction, may imply hereditary disorder
- Gradual onset with pruritus, weight loss and clay coloured stools imply intrahepatic or extrahepatic obstruction
- Painless jaundice in elderly patients with weight loss and a mass in abdominal region may imply malignancy of head of pancreas.
- Diagnosis of the disease: liver function tests; imaging technques

## Key summary of the chapter

- Hepatobiliary system comprises of liver, gall bladder and vessels which help to move bile into duodenum and blood from portal vein to inferior vena cava to hepatic vein. Liver is one of the major organ which performs more than 70 different activities of the human body related to metabolism, storage, excretion etc. These different functions will get disturbed depending upon the nature of exposure of the aetiological factor, physical strength of the human being.
- Cirrhosis of the liver is a late stage of fibrosis of the liver which resulted in widespread distortion of hepatic structural design. Fibrosis is wound healing occurring in the liver where excessive connective tissue builds up in the liver.
- ALD is the hepatic dysfunction which occurs due to the excess consumption of alcohol. NALD is the hepatic dysfunction occurs in the similar fashion as in ALD, but with negative history of alcohol intake. The pathological events occur in this disease process are fatty liver, alcoholic hepatitis and cirrhosis of liver.
- Hepatitis is the inflammation of liver characterized by diffuse or patchy necrosis. Major causes of this disease are septic hepatic viruses, alcohol and drugs. 5 different species of hepatitis virus are responsible for the manifestation of viral hepatitis. These species are hepatitis A, B, C, D and E. Fever, yellowish discolouration of skin, sclera, tongue and mucous membrane and pain in the right upper quadrant are some of the major clinical features observing during the progression of the disease.
- Jaundice is the term used when the individual is presented with yellowish discolouration of skin, sclera, tongue and mucous membranes due to excess concentration of bilirubin in the body. This is clinically detectable if the serum bilirubin concentration raises above 2 – 3 mg/ dl. Depending upon the pathogenesis, jaundice is subdivided into prehepatic, hepatic and posthepatic jaundice. Prehepatic jaundice is occurring in the body either because of excess haemolysis or because of the deficient uptake of unconjugated bilirubin by hepatocytes. Hepatic jaundice is presented in an individual when he is having main pathology in the liver itself. Posthepatic jaundice occurs in an individual when the course of movement of bile from the liver to the duodenum is disturbed. Each of these types of jaundice will show typical clinical features which helps the clinician to plan the line of treatment in an efficient manner.
- Ascites is the term used when there is excess accumulation of fluid in the peritoneal cavity happens. This occurs mainly because of portal hypertension. The main clinical presentation is excess abdominal girth which makes the person to wear the clothes with difficulty. When the person is having ascites because of hepatic dysfunction, this will be associated with yellowish discolouration of the skin, sclera and mucous membranes and when it occurs because of cardiac dysfunction, this may be associated with the features of cardiac failure.

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain alcoholic liver disease
- Describe jaundice
- Describe ascites
- Describe viral hepatitis
- Explain cirrhosis of liver

### MCQs

1. **Which of the following is an example of prehepatic jaundice?**
   a. Viral hepatitis;
   b. Malaria;
   c. Carcinoma of head of pancreas;
   d. Stricture of common bile duct

*Answer*: (b)

2. **Which of the following is not an example of prehepatic jaundice?**
   a. Sickle cell disease;
   b. Malaria;
   c. Congenital spherocytosis;
   d. Cirrhosis of liver

*Answer*: (d)

3. **Which of the following sign is indicative of the diagnosis of ascites?**
   a. Puddle sign;
   b. Murphy's sign;
   c. Cullen's sign;
   d. Trendelenberg sign

*Answer*: (a)

4. **Smiling umbilicus is observed in which of the following disease?**
   a. Large ovarian cyst;
   b. Huge ascites;
   c. Acute appendicitis;
   d. Umbilical hernia

*Answer*: (b)

**5. Viral hepatitis is an example of .............type of jaundice.**

a. Prehepatic;
b. Hepatic;
c. Posthepatic;
d. All of the above

*Answer*: (b)

**6. Borborygmi is associated with which of the following condition?**

a. Ascites;
b. Large intestinal obstruction;
c. Viral hepatitis;
d. Pregnancy

*Answer*: (b)

**7. Borborygmi is ...............type of physical examination.**

a. Inspection; b. Palpation;
c. Percussion; d. Auscultation

*Answer*: (d)

**8. The presenting complaint, malena (dark tarry stools) is indicative of site of the lesion in**

a. Stomach;
b. Small intestine;
c. Caecum;
d. Large intestine

*Answer*: (a)

**9. Unconjugated bilirubin combines with ............to become conjugated bilirubin.**

a. Glucuronic acid;
b. Hydrochloric acid;
c. Carbonic acid;
d. Lactic acid

*Answer*: (a)

**10. In which part of the body, yellowish discolouration is seen in the patient of jaundice?**

a. Eye; b. Tongue;
c. Skin; d. Nail

*Answer*: (b)

## Chapter resources

- Physical diagnosis – a textbook of symptoms and physical signs by Rustom Jal Vakil and Aspi F Golwalla 13th edition, MPP (Media Promoters and Publishers) Pvt. Ltd, Mumbai, 2010
- A manual on clinical surgery by S Das, 4th edition, Published by S Das, Calcutta, 1998
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- https://www.news-medical.net/health/What-Causes-Cirrhosis.aspx
- https://diapharma.com/emerging-biomarkers-in-alcoholic-liver-disease-ald/
- https://hep.org/hep-abc/
- www.sciencedirect.com
- www.healthgrades.com
- www.smileshospitals.com
- www.myhealth.alberta.ca
- www.monashfodmap.com
- www.cancerclinix.com
- www.srinarayanamedicalcentre.com
- www.medical-artist.com

***

CHAPTER

29

# Kushtha Mahakushtha and Kshudrakushtha

**Learning Objectives**

- To learn the definition of Kushtha
- Learning the concept of Kushtha
- Learning the Nidana Panchaka of Kushtha mentioned in Ayurveda literatures
- To frame out the probable Samprapti Ghataka based on the progression of the disease
- To enlist the types of Mahakushtha and Kshudrakushtha
- To learn about Purvarupa of Kushtha
- To know about Vishishta Lakshana of Mahakushtha and Ksudrakushtha
- To know about the Lakshana of Kushtha based on Dosha dominance
- To know about the Sadhyasadhyata of Mahakushtha and Kshudrakushtha
- To know the difference between Mahakushtha and Kshudrakushtha

## Introduction

*Kushtha* is a spectrum of diseases where we can observe symptoms related to integumentary system. *Kushtha* involves the involvement of all three *Dosha* and is chronic disease i.e. *Chirakari Vikara* or slowly manifesting disease. Along with *Tridosha, Tvak, Rakta, Mamsa* and *Ambu* are the factors involved in the pathogenesis of the *Kushtha.*

As per literatures, *Kushtha* is categorised under *Adibala Pravritta Vikara* of *Adhyatmika Vikara* as per classification of *Sushruta.* Based on the nature of illness, usually *Kushtha* is considered to be *Asadhya Vikara.*

## Definition of Kushtha

**कुष्णाति शरीरस्थशोणितं विकुरुते इति।** Shabda Kalpa Druma

As per *Shabda Kalpa Druma, Kushtha* is a spectrum of diseases where disturbances in *Shonita* or *Rakta* of the individual occurs.

This may result in abnormalities in the functions of *Tvak* in the form of discolouration, itching, disfiguration or general symptoms such as raised body temperature or weight loss etc.

## Nidana of Kushtha

**विरोधीन्यन्नपानानि द्रवस्निग्धगुरुणि च।**
**भजतामागतां छर्दिं वेगांश्चान्यान्प्रतिप्रताम्॥4॥**
**व्यायाममतिसंतापमतिभुक्त्वोपसेविनाम्।**
**शीतोष्णलङ्घनाहारान् कर्म मुक्त्या निषेविणाम्॥5॥**
**धर्मश्रमभयार्तानां दुतं शीताम्बुसेविनाम्।**
**अजीर्णाभ्यशिनां चैव पञ्चकर्मापचारिणाम्॥6॥**
**नवाग्न्नदधिमत्स्यातिलबणाम्लनिषेविणाम्।**
**मापमूलकपिष्टान्नतिलक्षीरगुडाशिनाम्।7॥**
**व्यवायं चाप्यजीर्णेऽन्ने निद्रां च भजतां दिवा।**
**विप्रान् गुरून् धर्षयतां पापं कर्म च कुर्वताम्॥8॥** Ca.Ci. – 7/4-8

- Excess consumption of incompatible food substances in terms of food and drinks with *Drava* (liquid), *Snigdha* (unctuous) and *Guru* (heavy to digest) qualities[1]

---

[1] When an individual is consuming incompatible food substances, that will lead to inflammation of the stomach as these food substances may remain in the stomach for a period of 2 hours. This will lead to the production of inflammatory markers which are nothing but proteins, and these will lead to the more amount of fluid to get transferred from capillaries of the stomach into the gastric lumen.

- Suppression of *Chardi* or vomiting or suppression of *Vamana* (emesis) therapy[2].
- Excess exercise soon after the consumption of food[3].
- Exposure to sunlight after the consumption of food[4].
- Improper consumption of cold and hot substances[5].
- Improper following the rituals of fasting and consumption of food[6].
- Excess consumption of cold water in cold season[7].
- Excess consumption of cold water in extreme physical exertion[8].
- Excess consumption of cold water in extreme fearful situation[9].
- Excess consumption of food before the digestion of previously ingested meal[10].

---

- At this particular time period, the ingested food materials which are of macromolecular size, unable to get converted into intermediate or micromolecules due to the compromise in gastric function.
- The inflammation occurred in the gastric lumen will damage the gastric mucosa, the macromolecules which come in contact with damaged gastric mucosa move into the interstitial compartment of the stomach, from there macromolecules enter into the intravascular compartment via lymphatic system. From the intravascular compartment, the macromolecules which act as foreign body in the blood vessels, will enter the interstitial compartment and from there, the entry into interstitial compartment occurs.
- Macromolecules can enter any part of the body. To have the manifestation in the integumentary system, macromolecules will enter the interstitial and intracellular compartments of the skin and appendages.
- Thus, the person may have manifestation of the skin disease.

[2] Suppression of vomiting can be seen usually in case of the person who is vomiting either because of gastrointestinal or neurological or other non gastrointestinal conditions. When vomiting is suppressed, the substances responsible for vomiting will be transferred from alimentary canal to intravascular compartment and then to interstitial compartment and at last in the intraceullular compartment. When the inflammatory markers observed in the interstitial and intracellular compartment. When the disease causing pathogens seen in either interstitial or intracelliular compartments, the person may present with Kushtha (any skin disease)

When an individual suppresses vomiting, it will lead to tissue injury which may occur as a result of bacteria, trauma or chemicals (medicines). This will lead to the secretion of more amount of chemicals such as histamine, bradykinin etc and these chemicals will enter the intravascular, interstitial and intracellular compartment through a simple process of diffusion. When these chemicals enter into the intracellular compartment of integumentary system, he will present with skin disease.

[3] Performing excess amount of exercise after the consumption of food, there will be poor blood supply to the alimentary canal and the person have more blood supply to the skeletal muscles. Because of this mechanism, the gastrointestinal secretions will be reduced markedly, thus the person may have digestive impairment.

When an individual is performing exercise soon after the consumption of food, first of all there will poor secretion happen around the alimentary canal leading to poor nutrient absorption and this in turn initiates anaerobic metabolism leading to the accumulation of lactic acid across inside the cells leading to the intracellular accumulation of lactic acid. This accumulation leads to the lowering of the pH of the cell. When the pH is reduced, that will lead to damage of the cell organelles of the cell. If the damage is occurring in the integumentary system, that will lead to the manifestation of skin disease.

[4] Having excess exposure to sunlight soon after the consumption of food will lead to the increased peripheral circulation of blood deviating the blood to the exterior from the alimentary canal. This will lead to the poor absorption of nutrients, there will be initiation of anaerobic metabolism and thus, there will be accumulation of lactic acid inside the cells leading to the damage of the cells. If the mechanism happens inside the cells of the integumentary system, the person may have the development of the skin disease.

[5] Improper consumption of cold and hot substances usually responsible for poor and increased secretion of digestive juices in the alimentary canal. This kind of the diet is usually observed in Indians when they visit the restaurants, they consume spicy substances as well as juice or ice cream at a single meal time. This will lead to the poor absorption of nutrients and thus, the body switches over to the anaerobic metabolism when there is abnormal and reduced nutrient absorption leading to the accumulation of lactic acid inside the intracellular compartment and if there is accumulation of lactic acid inside the cells of the skin will lead to the manifestation of the skin disease.

[6] If an individual does fasting for a certain period of time, he should break the fasting by consuming a glass of lemonade and this should be followed by food intake. If the person is having the habit of doing frequent fasting without following appropriate measures of breaking the fasting, this may lead to the anerobic metabolism in the body and this may lead to gradual accumulation of lactic acid in the intracellular compartment. Skin disease manifests if there is accumulation of lactic acid in the integumentary system.

[7] When an individual consumes excess amount of cold water in cold season, first of all, there will be contraction of the secretory cells of mouth, stomach, small intestine. The secretions of these organs are going to get reduced.

- This will reduce gastric juice secretion, the next sequel is hampered food intake and later that will lead to metabolic acidosis (ketoacidosis and lactic acidosis).
- There is no direct relation with skin disease and cold water consumption in cold season, but one of the major things happens is lowered immune status of the body. Thus, the person is likely to have many of the disease manifestation including skin disease.

[8] When the person consumes excess amount of cold water in extreme physical exertion, two things are occurring inside the patient: reduced secretion in the alimentary canal compartment and development of metabolic acidosis in the body. This will lead to the reduced food intake, the body gets extreme fatigue secondary to physical exertion.

[9] Excess consumption of cold water in fearful situation is responsible for sympathetic nervous system activation i.e. reduced alimentary secretion and contraction of sphincters of alimentary canal. This may lead to the poor digestive activity in the digestive system.

- This will initially lead to the utilisation of deposited nutrients in the form of sequential use of carbohydrates, fats and proteins. Thus, the person may attain metabolic acidosis.

[10] This is termed as Adhyashana. When this happens in an individual, following events happen in the human body.

- Closure of pyloric antrum immediately after consuming excess diet for a period of 2 hours.

- Improper post *Panchakarma* diet and regimen[11].
- Excess consumption of freshly harvested grains[12].
- Excess consumption of curds[13].
- Excess consumption of fish[14].
- Excess consumption of *Lavana* (salt) and *Amla* (sour) *Rasa* substances[15].
- Excess consumption of blackgram, radish, flour items, sesaumum seeds, milk and jaggery[16].
- Excess sexual intercourse in indigested state[17].
- Excess sleep during day time[18,19].
- Not giving appropriate respect to elders and teachers[20].
- Performing *Papa Karma* (ill deeds) done in one's previous or present life.

## Samprapti of Kushtha

वातादयस्त्रयो दुष्टास्त्वग्रतं मांसमम्बु च।
दूषयन्ति स कुष्ठानां सप्तको द्रव्यसंग्रहः॥9॥
अतः कुष्ठानि जायन्ते सप्त चैकादशैव च।
न चैकदोषजं किञ्चित् कुष्ठं समुपलभ्यते॥10॥ Ca.Ci. – 7/9,10

- Due to above said etiological factors, *Vata, Pitta* and *Kapha Dosha* get vitiated.
- These vitiated *Dosha* will afflict *Tvak, Rakta, Mamsa* and *Ambu*.
- The *Tridosha* and above four factors involved in the disease *Kushtha* are together termed as *Saptaka Dravya Sangraha*.
- Altogether, the above seven factors are responsible for the manifestation of *Kushtha* where vitiated *Dosha* from the *Koshtha* move to the *Shakha*, thereby responsible for the manifestation of *Kushtha*.
- All *Kushtha* are invariably considered to be *Tridoshaja* by nature. *Ayurveda* literatures described 7 types of *Mahakushtha* and 11 types of *Kshudrakushtha*.

## Samprapti Ghataka

- **Dosha :** *Tridosha*
- **Dushya :** *Rasa, Rakta, Mamsa, Ambu*
- **Srotas:** *Rasavaha, Raktavaha, Mamsavaha* and *Udakavaha Srotas*.

---

- Macromolecules of recently consumed food pave the way to move earlier consumed macromolecules or intermediate molecules to the stomach wall.
- Poor functioning of gastric juice: pH of gastric juice >5; inactivation of pepsinogen into pepsin, proliferation of bacteria in the stomach as carbohydrate is most of the occasions, major diet consumed frequently.
- Inflammation of the stomach happens, leading to the formation of inflammatory markers, which leads to more secretion from the stomach into the gastric lumen.
- This leads to the gastric mucosal damage. This will lead to the transport of macromolecules and intermediate molecules from the gastric lumen into the interstitial compartment of stomach to the lymphatics, thence to the superior vena cava at the junction between left internal jugular vein and left subclavian vein.
- As these are macromolecules in nature, these substances are not utilised by the body. Thus, body tries to utilise the fats and thus leading to metabolic acidosis (ketoacidosis and lactic acidosis).

[11] Improper post Panchakarma diet and regimen refers to not following the advices given by the Panchakarma expert. This may be in the form of consuming curds after 1st day of Virechana or Vamana; travelling long distance of more than 100 kms or more or speaking out loud in a gathering or travelling in uneven roads or exposed to dust or smoke.
- In the context of Kushtha, exposure to dust or smoke or cold air contact to the skin can be the risk factor for the manifestation of skin disease.

[12] As per Ayurveda literatures, freshly harvested grains will lead to abnormal increase of Kapha Dosha in the body, if the person is susceptible, may be responsible for Kushtha.

[13] Excess consumption of curds will lead to the vitiation of Kapha and Pitta Dosha, either single Dosha or both Dosha depending upon the composition of curds. If the skin is susceptible, the person may develop the manifestation of Kushtha.

[14] As per Ayurveda literature, the qualities of fish are Madhura Rasa, Guru and Snigdha qualities, Ushna Virya and Madhura Vipaka. Excess consumption of fishes is responsible for the abnormal increase of either Pitta or Kapha Dosha or both. If the skin is susceptible, vitiated Dosha will lead to manifestation of Kushtha in the individual.

[15] Excess consumption of Lavana and Amla Rasa will lead to abnormal increase of Pitta or Kapha or both Dosha in the body, thus may lead to the manifestation of Kushtha, if he is susceptible.

[16] By consuming above said substances, there will be vitiation of Kapha Dosha in the body.

[17] Excess sexual intercourse in indigested state, leads to the increased basal metabolic rate; sequential depletion of carbohydrate, fat and protein in the body, thus lowering immune status of the body.

[18] Excess indulgence in sleep during day time will lead to the increase of Kapha Dosha in the body. If Khavaigunya is present in Tvak and if the individual is sleeping excessively during day time, he may be presented with Kushtha.

[19] This will lead to the extreme vitiation of Kapha Dosha instantly.

[20] To understand this concept, we have to remember the formula M-TFAR-D. As per this formula, your destiny is decided by your mindset which influences your thoughts, feelings, actions and results.
- Elders and teachers will give the advices based on the experiences in terms of healthy lifestyle.
- Not giving the due consideration to elders, leads to non-following of advices, thus the person may have multiple diseases including skin disease.
- Refer the context of Unmada for this to understand even better.

- **Srotodushti Prakara:** *Sanga* and *Vimargagamana.*
- **Agni :** *Jatharagnimandya, Rasadhatvagni* and *Raktadhatvagnimandya.*
- **Ama :** *Jatharagnijanya, Rasadhatvagnijanya* and *Raktadhatvagnijanya*
- **Udbhava Sthana:** Either *Amashaya* or *Pakvashaya* depending upon the initial *Dosha* vitiation.
- **Sanchara Sthana :** *Sarva Sharira.*
- **Vyakta Sthana :** *Tvak.*
- **Rogamarga :** *Abhyantara, Bahya.*
- **Sadhyasadhya :** *Asadhya.*
- **Vyadhyavastha:** *Chirakari.*

## Purvarupa of Kushtha[21]

स्पर्शाशत्वमतिखेदो न वा वैवण्यमुन्नतिः।
कोठानां लोमहर्षश्च कण्डूस्तोदः श्रमः क्रमः॥1 1॥
प्रणानामधिकं शूलं शीघ्रोत्पत्तिधिरस्थितिः।
दाहः सुताङ्गता चेति कुष्ठलक्षणमग्रजम्॥1 2॥

Ca.Ci. – 7/11-12

- Numbness[22].
- Excess sweating[23].
- Little or no sweating at all.
- Discolouration of the skin.
- Papular skin lesions.
- Skin eruptions.
- Horripulation.
- Itching.
- Pricking type of pain[24].
- Giddiness[25].
- Fatigue without any physical exertion[26].
- Formation of multiple ulcers and persistence of ulcers for long time.
- Burning sensation.
- Tingling sensation[27]

---

[21] This is a disease afflicting Tvak (skin and its appendages). When we speak of skin, it contains 5 different types of receptors.

1. Mechanical receptors which detect the mechanical compression or stretching
2. Thermoreceptors detect the changes in the temperature either cold or warmth
3. Nociceptors – which detect damage occurring in the tissues also termed as pain receptors
3. Electromagnetic receptors – detect light on the retina of the eye
5. Chemoreceptors – detect taste in the mouth, smell in the nose, oxygen level in the arterial blood, carbon dioxide concentration in the body etc.

Among these types, mechanoreceptors, thermoreceptors and nociceptors are of significance as far as skin disease is concerned.

[22] Skin is having different receptors for the conduction of different types of sensations. Tactile sensation, temperature, pressure, vibration, pain, itching etc are carried by different types of receptors. When an individual is having different skin diseases, this may lead to damage of different sensory receptors. Depending upon the nature of damage to sensory receptors, the person may have different abnormal sensory perception including numbness or temperature imperception or pressure sensation etc.

[23] Two types of sweat glands are seen – apcrine sweat glands and eccrine sweat glands depending upon the structure and type of secretion. There are 3 to 4 million sweat glands are present in the human body.

- Eccrine sweat glands are distributed throughout the skin of most regions of the body, especially in the skin of forehead, palms and soles. These glands are not present in margins of lips, nail beds of fingers, glans penis, glans clitoris, labia minora or eardrums. The secretory portion of eccrine sweat glands is located mostly in deep dermis. The excretory portion projects through dermis and epidermis and ends as a pore at the surface of the epidermis.
    - This leads to the production of sweat which contains more amount of water, with small amounts of ions sodium and chloride, urea, uric acid, ammonia, amino acids, glucose, and lactic acid.
    - This also helps in regulation of body temperature.
    - These sweat glands also release sweat in response to emotional stress which is referred as emotional sweating or cold sweat.
- Apocrine sweat glands are simple coiled tubular glands, but have larger ducts and lumens than eccrine glands. They are found in the skin of axilla, groin, areolae of breast and bearded regions of face in adult males.
    - Compared to eccrine sweat, apocrine sweat appears milky or yellowish in colour. The components are similar to eccrine sweat plus lipids and proteins. Apocrine sweat is odourless.
    - Apocrine sweat glands produce sweat during sexual activities.

    In case of skin disease, there may be the damage to the dermis or epidermis, thus damage to the sweat glands may occur leading to hampering of sweat production.
- Increase in sweat production may occur as a result of increased peripheral circulation which occurs to combat the pathogen in the skin.

[24] Depending upon the nature of exposure of the pathogen to the part of the body or whole body, the person may develop either localised or patchy or widespread skin lesions observed in the patient. First of all, the clinician has to decide whether these lesions are primary or secondary in appearance. These are helpful in the differential diagnosis of the skin diseases.

[25] The presence of giddiness implies the person is receiving less amount of blood supply to the brain which is termed as syncopal episodes. This occurs due to the reshift of the blood to the peripheral circulation secondary to the development of skin lesions.

[26] As far as Ayurveda fundamentals are concerned, Kushtha is a condition which has a long-standing history (Chirakari) disease. Due to this, the person may have sequential depletion of carbohydrate, fats and proteins. Thus, the person may have fatigue without doing any strenuous physical activity.

[27] These symptoms are seen as a result of abnormal sensory perception. This can result from damage to the sensory receptors of the integumentary system.

## Types of Kushtha

अत ऊर्ध्वमष्टादशानां कुष्ठानां कपालोदुम्बरमण्डलजिहपुण्डरीकसिमका
कण कैककुष्ठचर्मास्यकिटिमविपादिकालसकदचर्मदलपामाविस्कोट-
कशतारुर्विचर्चिकानां लक्षणाम्युपदेक्ष्यामः॥1 3॥ Ca.Ci. – 7/13

7 *Mahakushtha* are *Kapala, Udumbara, Mandala, Rishyajihva, Pundarika, Sidhma* and *Kakanaka.*

11 *Kshudrakushtha* are *Ekakushtha, Charmakhya, Kitibha, Vipadika, Alasaka, Dadru, Charmadala, Pama, Visphotaka, Shataru, Vicharchika.*

### Mahakushtha: as per Charaka

| S.No. | Mahakushtha | Dosha dominance |
|---|---|---|
| 1, | Kapala | Vata |
| 2. | Udumbara | Pitta |
| 3. | Mandala | Kapha |
| 4. | Rishyajihva | Vata + Pitta |
| 5. | Pundarika | Kapha + Pitta |
| 6. | Sidhma | Vata + Kapha |
| 7. | Kakanaka | Vata + Pitta + Kapha |

### Kshudrakushtha: as per Charaka

| S.No. | Kshudrakushtha | Dosha dominance |
|---|---|---|
| 1. | Ekakushtha | Vata + Kapha |
| 2. | Charmakhya | Vata + Kapha |
| 3. | Kitibha | Vata + Kapha |
| 4. | Vipadika | Vata + Kapha |
| 5. | Alasaka | Vata + Kapha |
| 6. | Pama | Pitta + Kapha |
| 7. | Shataru | Pitta + Kapha |
| 8. | Visphota | Pitta + Kapha |
| 9. | Dadru | Pitta + Kapha |
| 10. | Charmadala | Pitta + Kapha |
| 11. | Vicharchika | Kapha |

## Kapala

कृष्णारुणकपालाभं यद्रूक्षं परुषं तनु।
कपालं तोदवडलं तत्कुष्ठं विषमं स्मृतम्॥1 4॥ Ca.Ci. – 7/14

- The skin lesion appears like a piece of broken earthen vessel.
- Blackish or reddish coloured skin lesion
- Dry or rough in appearance
- Thin in texture
- Very severe pricking type of pain

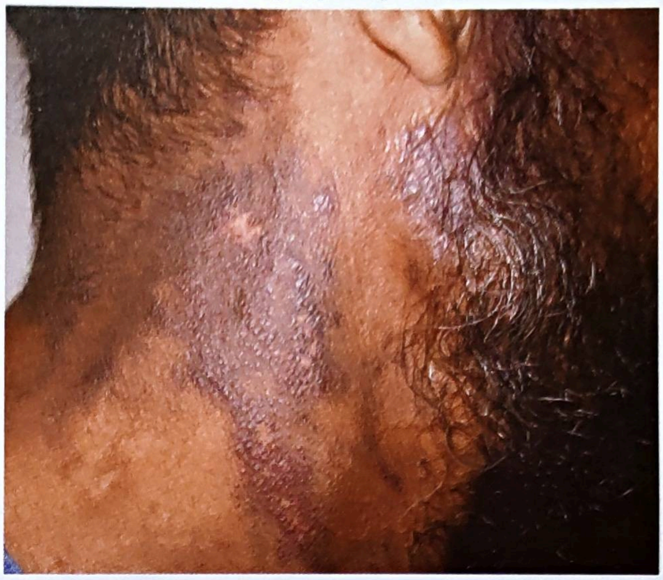


**Figure 88:** Vata dominant lesion

## Udumbara

दाहकण्डूरुजारागपरीतं लोमपिञ्जरम्।
उदुम्बरफलाभासं कुष्ठमौदुम्बरं विदुः॥1 5॥ Ca.Ci. – 7/15

- The appearance of skin lesion resembles fruit of *Udumbara* bright yellow in the centre and red around yellow discolouration
- Burning sensation around skin lesions
- Itching sensation around the skin lesion
- Severe pain around the skin lesion
- Redness around the skin lesion
- Matted body hairs around the skin lesion

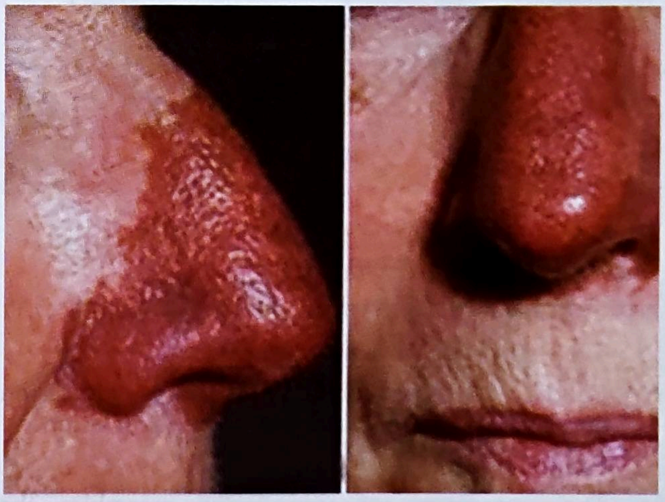


**Figure 89:** Pitta dominant lesion

## Mandala

श्वेतं रक्तं स्थिरं स्त्यानं स्निग्धमुत्सन्नमण्डलम्।

कृच्छ्रमन्योन्यसंसक्तं कुष्ठं मण्डलमुच्यते॥16॥ Ca.Ci. – 7/16

- Whitish discolouration of the skin lesion
- Reddish discolouration of the skin lesion
- Thick, circular, firm skin lesion
- Slimy or wet appearance
- Difficult to get cure from the skin lesion

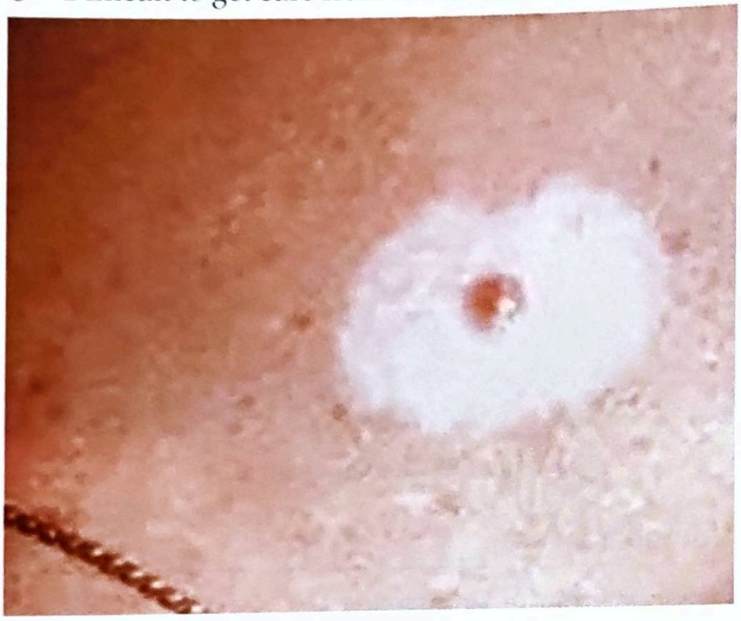


**Figure 90:** Kapha dominant lesion

## Rshyajihva

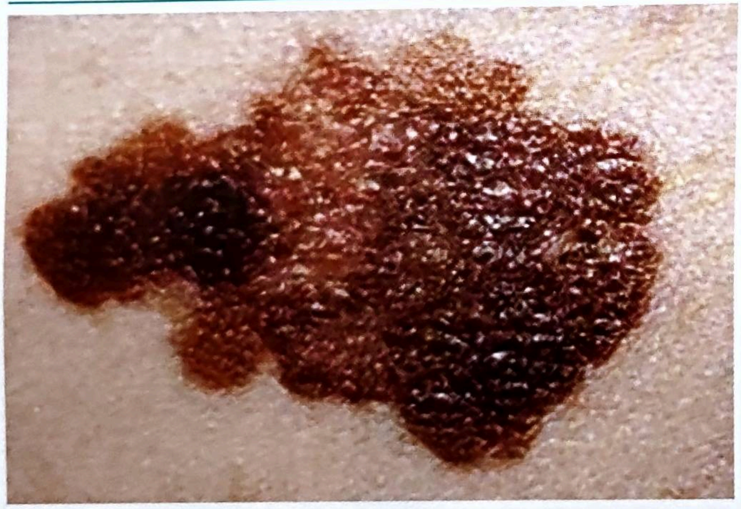


**Figure 91:** Vata and Pitta dominance

कर्कशं रक्तपर्यन्तमन्तः श्यावं सवेदनम्।
यदृष्यजिह्वासंस्थानमृष्यजिह्वं तदुच्यते॥17॥ Ca.Ci. – 7/17

- The skin lesion is rough in appearance
- Reddish discolouration throughout the skin lesion and blackish discolouration inside the skin lesion
- Painful lesion
- The appearance of skin lesion resembles the appearance of tongue of deer

## Pundarika

सश्वेतं रक्तपर्यन्तं पुण्डरीकदलोपमम्।
सोत्सेधं च सदाहं च पुण्डरीकं तदुच्यते॥18॥ Ca.Ci. – 7/18

- Reddish white skin lesion just like petals of lotus flower
- Elevated skin lesion
- Associated with burning sensation

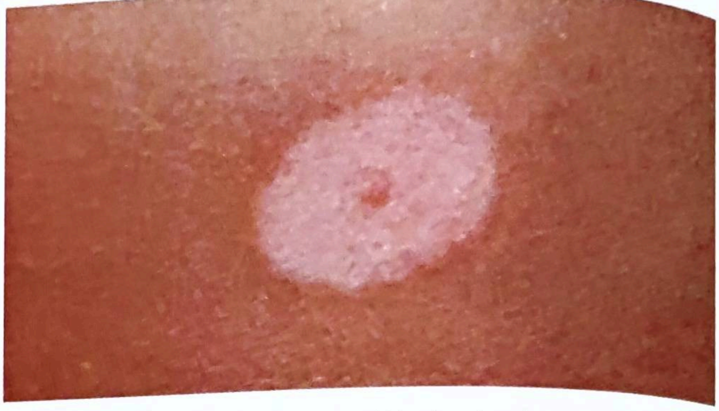


**Figure 92:** Pitta and Kapha dominance

## Sidhma

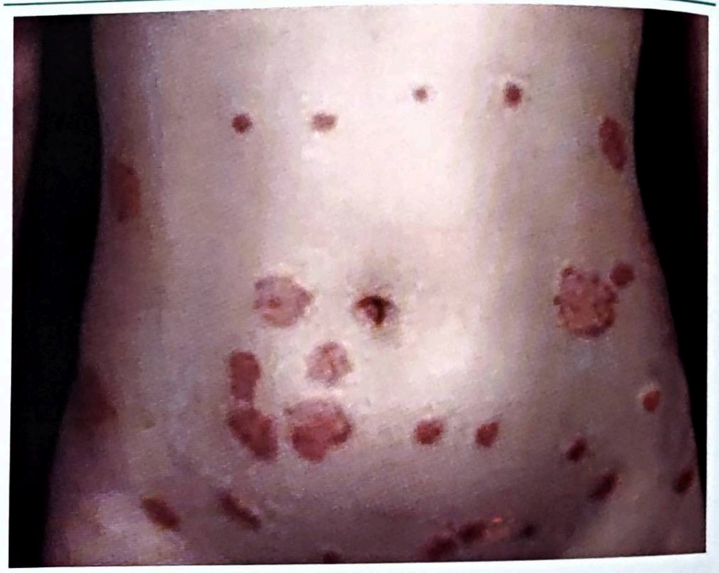


**Figure 93:** Vata and Kapha dominance

श्वेतं ताम्रं तनु च यद्रजो घृष्टं विमुञ्चति।
अलाबूपुष्पवर्ण तत् सिध्मं प्रायेण चोरसि॥19॥ Ca.Ci. – 7/19

- Coppery white discolouration of the skin lesion
- On itching, there will be shedding of thin, white, coppery powder from the skin
- The skin lesion resembles the colour of flower of *Alabu*.
- The appearance of skin lesion is usually seen in the thoracic region

## Kakanaka

यत् काकणन्तिकावर्णमपाकं तीव्रवेदनम्।
त्रिदोषलिङ्गं तत् कुष्ठं काकणं नैव सिध्यति॥20॥ Ca.Ci. – 7/20

- The skin lesions resemble the seed of *Gunja* i.e. black in the centre surrounded by reddish discolouration of the skin lesion

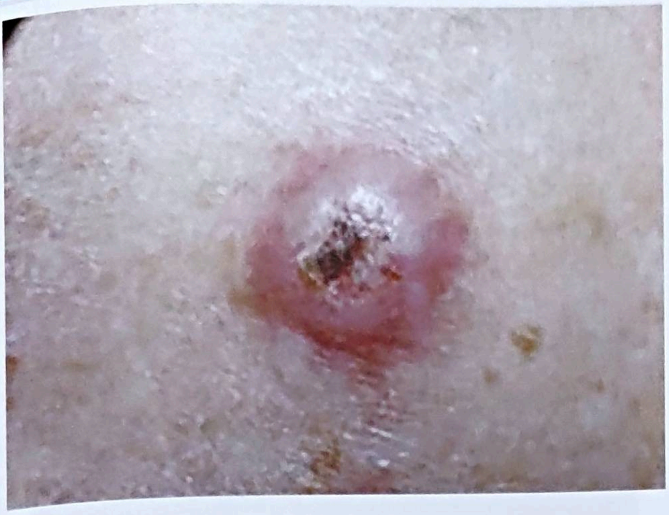


**Figure 94:** Tridosha dominance

- There will not be suppuration in the skin lesion
- It is associated with severe pain
- There will be vitiation of all three *Dosha*
- The skin lesions are incurable

## Kshudrakushtha

### Ekakushtha

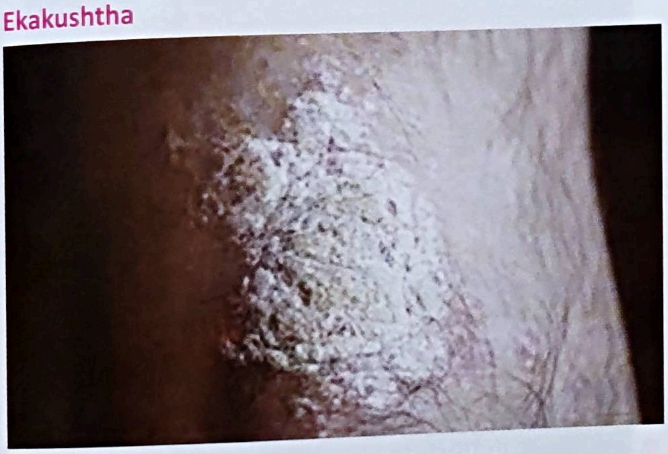


**Figure 95:** Lakshana of Ekakushtha

Psoriasis which is widespread even seen in scalp region

**अस्वेदनं महावास्तु यन्मत्स्यशकलोपमम्।**
**तदेककुष्ठं,** Ca.Ci. – 7/21

- Absence of sweating in the area of skin lesion
- Affects large area of skin, widespread and diffuse skin lesion
- The appearance of skin is like skin of fish

### Charmakhya

**चर्माख्यं बहलं हस्तिचमेवत्।।2 1 ।।** Ca.Ci. – 7/21

- The skin lesions are usually thick and hard like skin of the elephant.

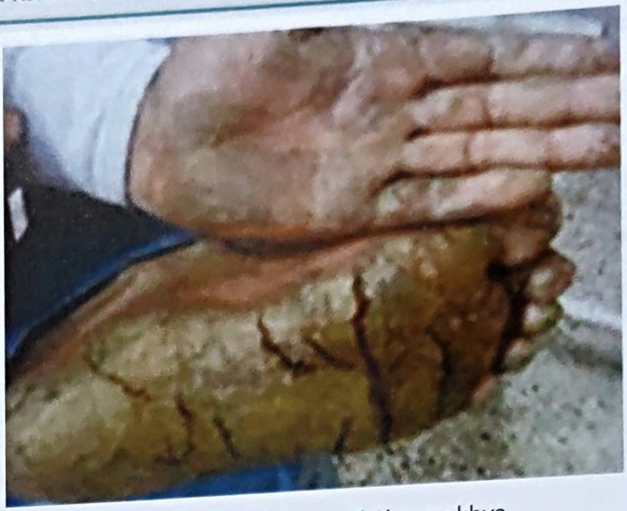


**Figure 96:** Lakshana of Charmakhya

### Kitibha

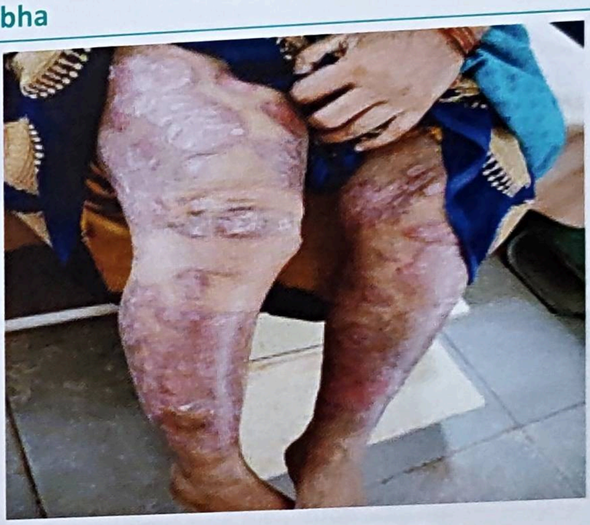


**Figure 97:** Lakshana of Kitibha

**श्यावं किणखर स्पर्श परुपं किटिमं स्मृतम्।** Ca.Ci. – 7/22

- Blackish skin lesion
- Dry and rough skin lesion similar to the appearance and texture of healed wound

### Vaipadika

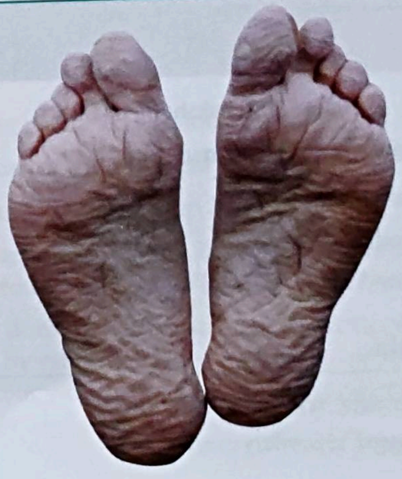


**Figure 98:** Lakshana of Vaipadika

वैपादिकं पाणिपादस्फुटनं तीव्रवेदनम्॥22॥ Ca.Ci. – 7/22

- Cracks in palms and soles of the individual
- Associated with severe pain

## Alasaka

कण्डूमद्भिः सरागैश्च गण्डैरलसकं चितम्। Ca.Ci. – 7/23

- The skin lesions are red
- Profuse itching

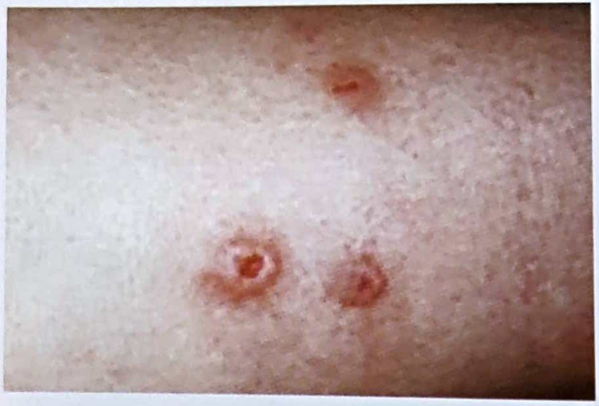


**Figure 99:** Lakshana of Alasaka

## Dadru

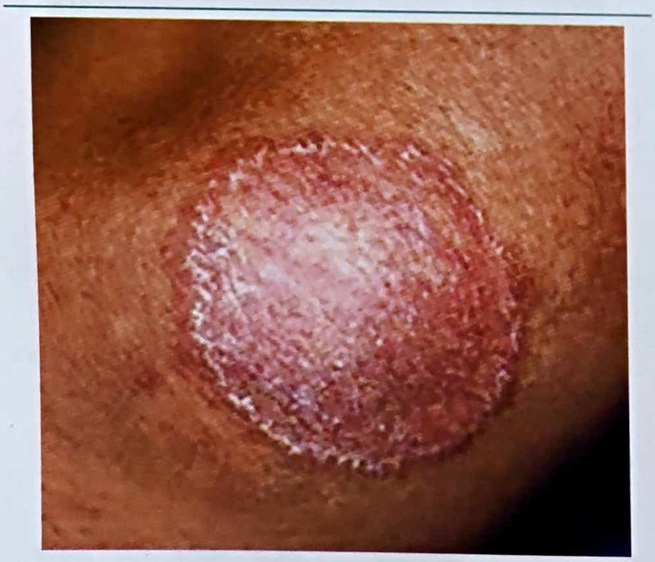


**Figure 100:** Lakshana of Dadru

सकण्डूरागपिडकं दद्रुमण्डलमुद्गतम्॥23॥ Ca.Ci. – 7/23

- Circular lesion
- Small reddish lesion
- Associated with itching

## Charmadala

रक्तं सकण्डु सस्फोटं सरुग्दलति चापि यत्।
तच्चर्मदलमाख्यातं संस्पर्शासहमुच्यते॥24॥ Ca.Ci. – 7/24

- Reddish lesion
- Itching
- Papular skin eruption
- Painful skin eruption
- Appearance of fissure in the skin eruption
- Tenderness in the skin eruption

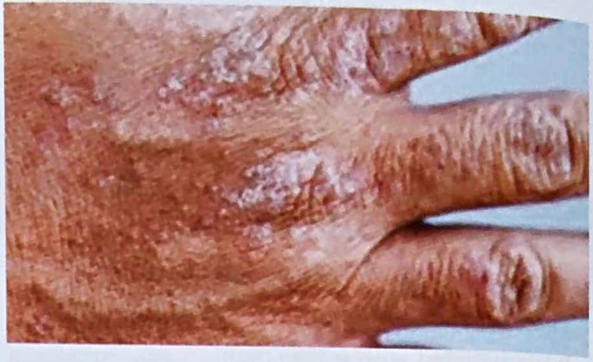


**Figure 101:** Lakshana of Charmadala

## Pama

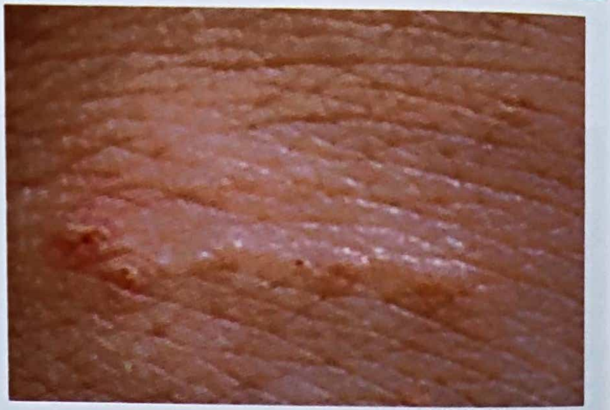


**Figure 102:** Lakshana of Pama

पामा श्वेतारुणश्यावाः कण्डूलाः पिडका भृशम्। Ca.Ci. – 7/25

- Whitish, reddish or blackish skin eruption
- Associated with itching

## Visphota

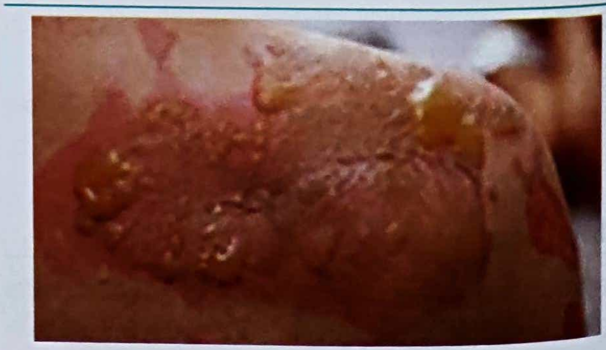


**Figure 103:** Lakshana of Visphota

स्फोटाः श्वेतारुणाभासो विस्फोटाः स्युस्तनुत्वचः॥

Ca.Ci. – 7/25

- Whitish or reddish skin eruptions
- Thin skin eruptions

## Shataru

रक्तं श्यावं सदाहर्ति शताः स्याद्बहुव्रणम्।

Ca.Ci. – 7/26

- Reddish or blackish skin eruptions
- Burning sensation
- Painful skin eruption
- Multiple wound formation

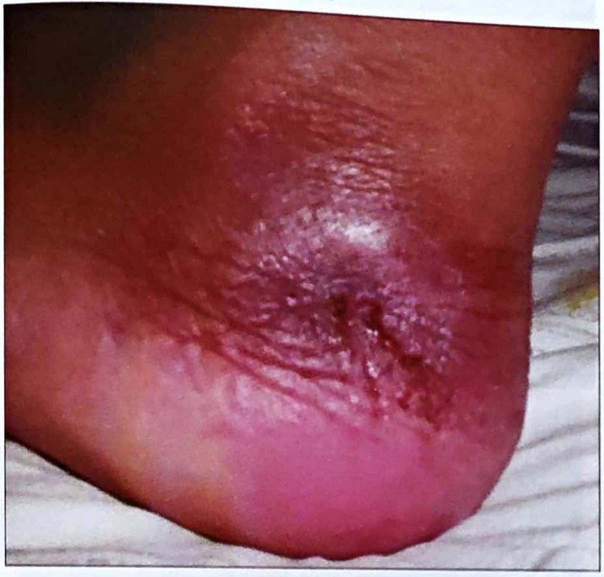


**Figure 104:** Lakshana of Shataru

## Vicharchika

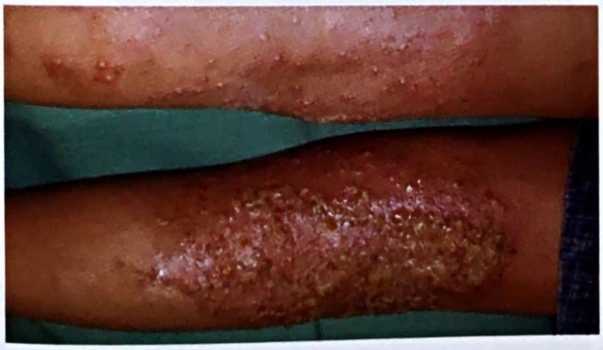


**Figure 105:** Lakshana of Vicharchika

सकण्डूः पिडका श्यावा बहुस्रावा विचर्चिका॥

Ca.Ci. – 7/26

- Blackish skin eruption
- Associated with itching
- Excess oozing from the skin lesion

## Dosha dominance and Lakshana of Kushtha

रौक्ष्यं शोषस्तोदः शूलं संकोचनं तथाऽऽयामः।
पारुष्यं खरभावो हर्षः श्यावारुणत्वं च॥34॥
कुष्ठेषु वातलिङ्ग, दाहो रागः परिस्त्रवः पाकः।
विस्त्रो गन्धः क्केदस्तथाऽङ्गपतनं च पित्तकृतम्॥35॥
श्वैत्यं शैत्यं कण्डूः स्थैर्य चोत्सेध गौरव स्नेहाः।
कुष्ठेषु तु कफलिङ्गं जन्तुभिरभिभक्षणं क्लेदः॥36॥

Ca.Ci. – 7/34-36

As all the varieties of *Kushtha* are *Tridoshaja* in manifestation, it will be difficult to identify the clinical features of *Kushtha*. That is why specific *Lakshana* in relation to *Dosha* vitiation are specifically mentioned in *Ayurveda* literatures.

### Vataja Kushtha Lakshana:

1. Dryness of the skin **(see Figure 106)**
2. Shrinkage of the skin **(see Figure 107)**
3. Pricking type of pain
4. Contracture of the skin **(see Figure 108)**
5. Bending of the body or deformities in body parts **(see Figure 109)**
6. Roughness of the skin **(see Figure 110)**
7. Horripulation
8. Blackish or reddish discolouration **(see Figure 111 and 112)**

### Pittaja Kushtha Lakshana:

1. Burning sensation of the skin
2. Redness of the skin **(see Figure 113)**
3. Secretion from the skin lesion **(see Figure 114)**
4. Suppuration or pus formation **(see Figure 115)**
5. Foul smell from the skin lesion
6. Increased moisture
7. Shedding of the tissues from the wound (sloughing) **(see Figure 116)**

### Kaphaja Kushtha Lakshana

1. Whitish discolouration of the skin lesion
2. Cold in touch
3. Itching
4. Firmness in the skin lesion
5. Heaviness of the skin lesion
6. Unctuousness of the skin lesion
7. Appearance of maggots in the wound eating the skin and surrounding tissues **(see Figure 117)**

Thus, *Dosha* dominance in *Kushtha* spectrum of diseases is determined by either variations in colour of the lesion or/and morphology of the lesions or/and clinical features of the disease or/and site of the lesions.

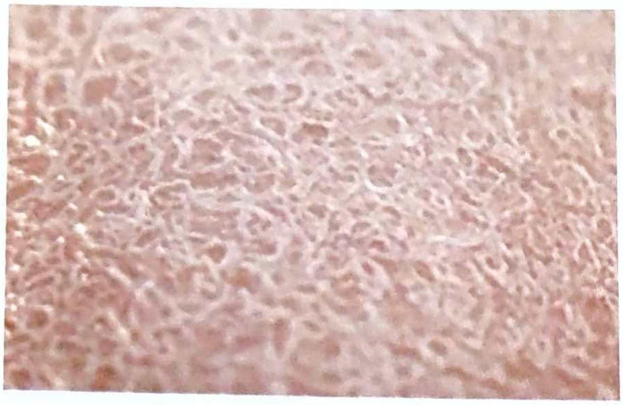


**Figure 106:** Rukshata or dryness of the skin

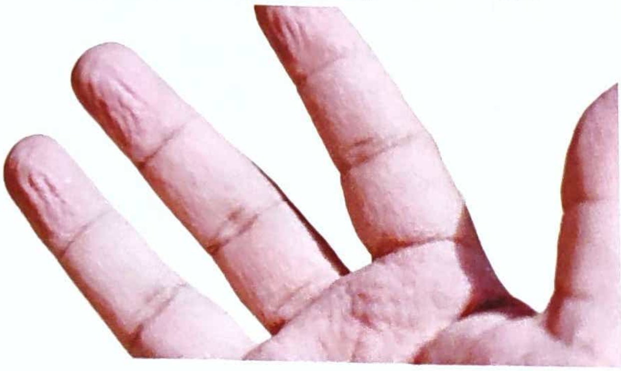


**Figure 107:** Shosha or shrinkage of the skin

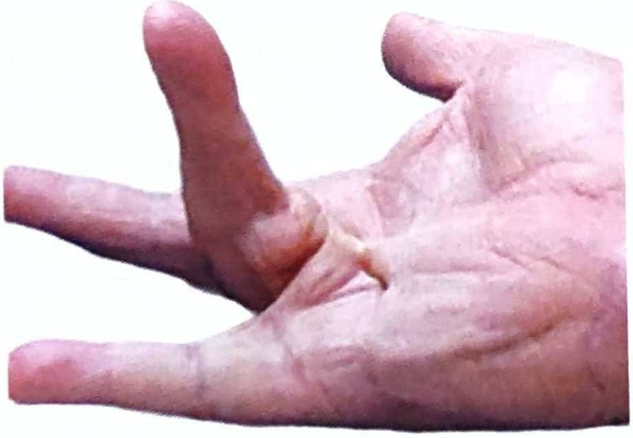


**Figure 108:** Sankocha or contracture of skin

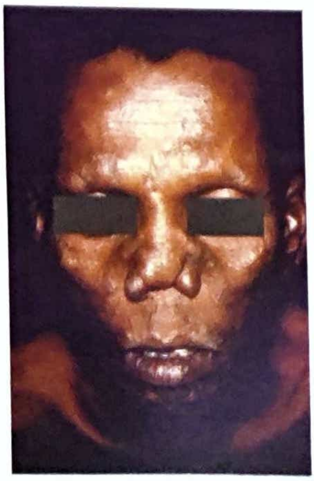


**Figure 109:** Angahinata or deformities of the body

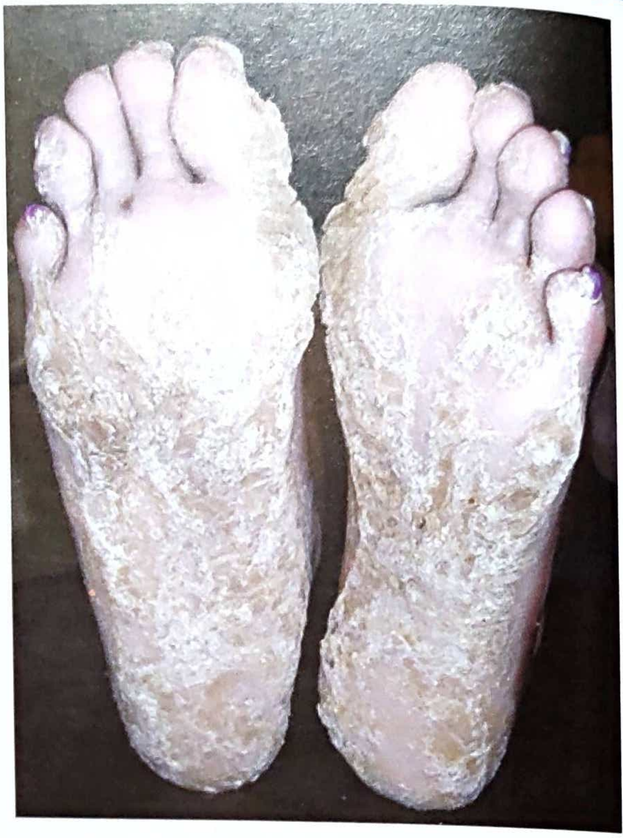


**Figure 110:** Kharatva or roughness of the skin

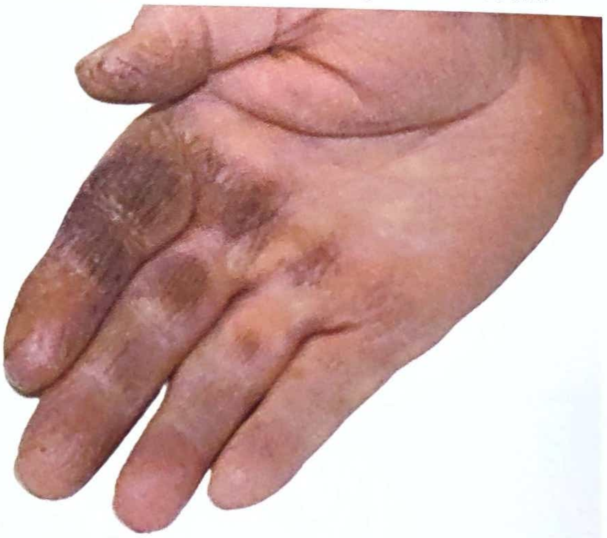


**Figure 111:** Shyava Varna or blackish discolouration

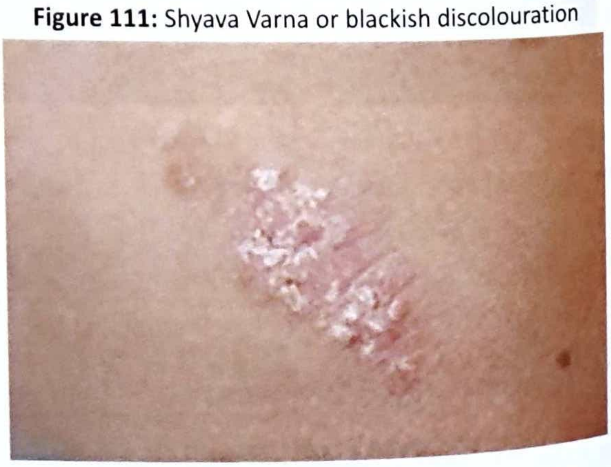


**Figure 112:** Aruna Varna or reddish discolouration

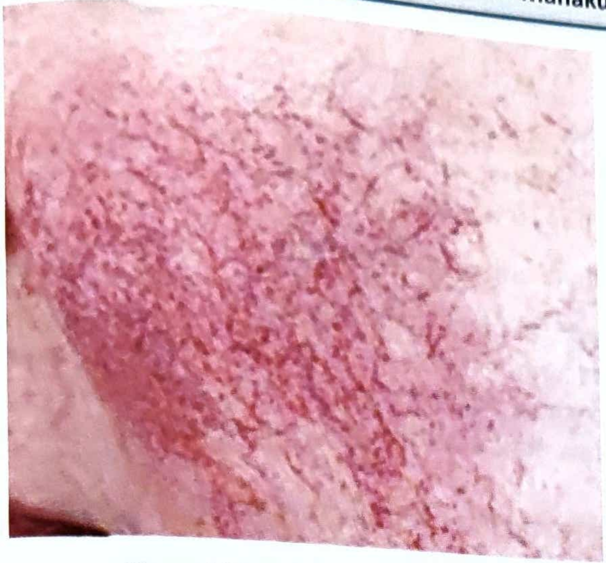


**Figure 113:** Rakta Varna or Raga

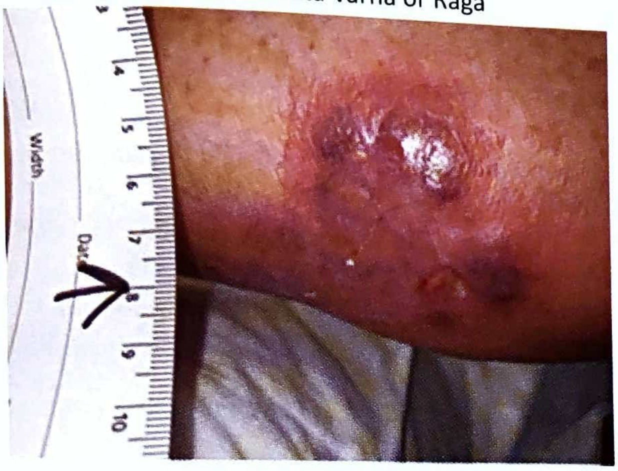


**Figure 114:** Puyasrava or discharge

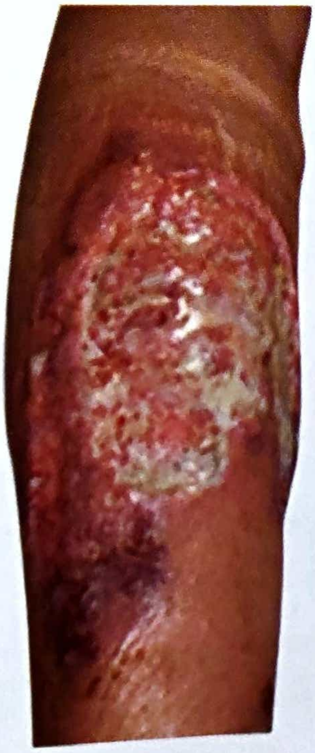


**Figure 115:** Putisrava or pus discharge

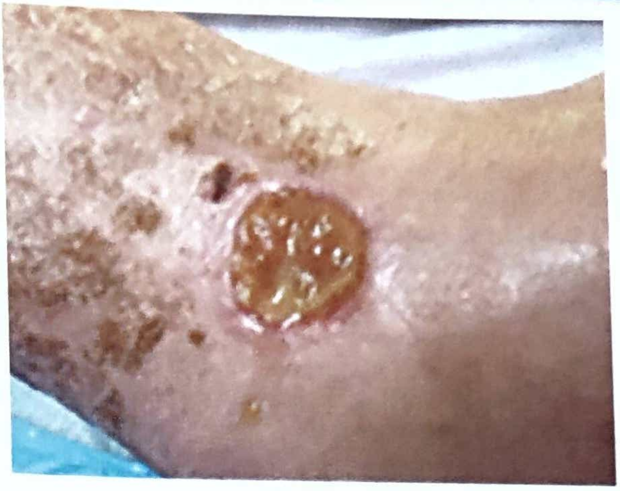


**Figure 116:** Kotha or sloughing

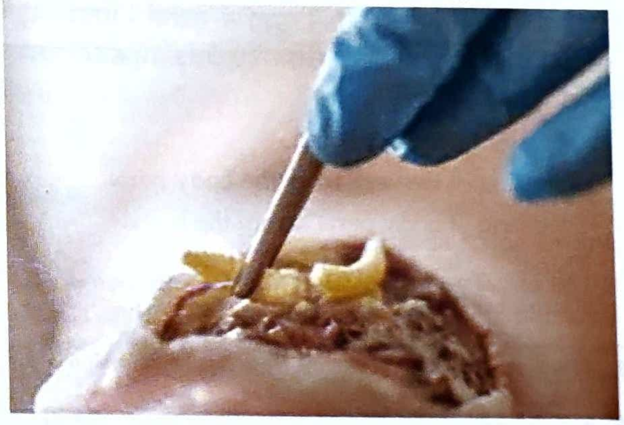


**Figure 117:** Appearance of Krimi

## Dhatugata Kushtha

स्पर्शहानिः स्वेदनत्वमीषत्कण्डूश्च जायते।
वैवर्ण्यं रूक्षभावश्च कुष्ठे त्वचि समाश्रिते॥22॥
त्वकस्वापो रोमहर्षश्च स्वेदस्याभिप्रवर्तनम्।
कण्डूर्विपूयकश्चैव कुष्ठे शोणितसंश्रिते॥23॥
बाहुल्यं वक्रशोषश्च कार्कश्यं पिडकोद्गमः।
तोदः स्फोटः स्थिरत्वं च कुष्ठे मांससमाश्रिते॥24॥
दौर्गन्ध्यमुपदेहश्च पूयोऽथ क्रिमयस्तथा।
गात्राणां भेदनं चापि कुष्ठे मेदः समाश्रिते॥25॥
नासाभङ्गोऽक्षिरागश्च क्षते च क्रिमिसंभवः।
भवेत् खरोपघातश्च अस्थिमज्जसमाश्रिते॥26॥
कौण्यं गतिक्षयोऽङ्गानां संभेदः क्षतसर्पणम्।
शुक्रस्थानगते लिङ्गं प्रागुक्तानि तथैव च॥27॥ Su.Ni. – 5/22-27

- **Tvak Gata Kushtha:** Reduced touch perception, sweating, mild itching, discolouration, dryness of the skin lesion
- **Rakta Gata Kushtha:** Absence of sensation in the skin, horripulation, sweating, itching, pus formation
- **Mamsa Gata Kushtha:** Multiple skin lesions, dryness of the mouth, roughness of the skin lesion, small and firm eruptions associated with pricking type of pain

- **Medo Gata Kushtha:** foul smell from the skin lesion due to discharge, pus formation and discharge, formation of maggots, cracks in different body parts.
- **Asthi Gata Kushtha:** Loss of nasal bridge, redness of the eyes, appearance of maggots in wound in the skin, hoarseness of voice.
- **Majja Gata Kushtha:** Similar *Lakshana* of *Asthi Gata Kushtha* are observed.
- **Shukra Gata Kushtha:** smell of dead body from the skin lesion, reduced movement in the patient who has this type of *Kushtha*; deformities of body, spread of wound and all other *Lakshana* mentioned in earlier varieties of *Kushtha*.

## Upadrava of Kushtha

**अस्यां चैवावस्थायामुपद्रवाः कुष्ठिनं स्पृशन्ति; तद्यथा - प्रस्त्रवणमङ्गभेदः पतनान्यङ्गावयवानां तृष्णाज्व- रातीसारदाहदौर्बल्यारोचकाविपाकाश्च, तथाविधमसाध्यं विद्यादिति॥11॥** Ca.Ni. – 5/11

- Oozing[28] from the wound.
- Shedding of tissues[29] from the body parts.
- Shedding of body parts[30] from the body.
- Thirst[31].
- Raised body temperature[32].
- Diarrhoea[33].
- Burning sensation[34].
- Weakness[35].
- Tastelessness.
- Impaired digestion[36].

## Sadhyasadhyata of Kushtha

**सर्वैर्लिङ्गैर्युक्तं मतिमान् विवर्जयेदवलम्।**
**तृष्णादाहपरीतं शान्ताग्निं जन्तुभिर्जग्धम्॥37॥**
**वातकफप्रबलं यद्यदेकदोषोल्वणं न तत् कृच्छ्रम्।**
**कफपित्त वातपित्तप्रबलानि तु कृच्छ्रसाध्यानि॥38॥**

Ca.Ci. – 7/37,38

**साध्यं त्वग्रक्तमांसस्थं वातश्लेष्माधिकं च यत्।**
**मेदसि द्वन्द्वजं याप्यं वर्ज्य मज्जास्थिसंश्रितम्॥31॥**
**क्रिमिवृड्दाहमन्दाग्निसंयुक्तं यत्रिदोषजम्।**
**प्रभिन्नं प्रस्त्रुताङ्गं च रक्तनेत्रं हतस्वरम्॥32॥**
**पञ्चकर्मगुणातीतं कुष्ठं हन्तीह मानवम्।**

Ma.Ni. – 49/31-33

- When all *Lakshana*[37] mentioned in *Kushtha* are seen in the patient.
- If *Rogibala*[38] (strength of the patient) is poor than *Rogabala* (strength of the disease).
- Associated with thirst and burning sensation[39].

---

**G K**

[28] When an individual is suffering from skin lesions filled with fluid (vesicles or pustules), itching in such occasion, may lead to oozing of the fluid or pus from the wound or ulcer.
- Oozing from the ulcer may occur in trivial disease such as eczema or serious illness such as pemphigus vulgaris.
- Pus can be observed in cellulitis etc

[29] Shedding of the tissues from the body parts can be observed in conditions such as psoriasis or dry eczema or atopic dermatitis or contact dermatitis etc.

[30] This may be observed in complications of leprosy where in the person may lose the part of the body due to inability to feel the sensation or temperature. Repeated damages to the affected parts may lead to loss of digits or fingers etc.

[31] The presence of thirst indicates shrinkage of intravascular compartment. In the person suffering from skin disease, which releases inflammatory markers in the interstitial compartment which may lead to attraction of WBCs etc to the interstitial compartment from the blood vessels. If the lesions are widespread, then there is a possibility of shrinking of intravascular compartment which may lead to appearance of thirst.
- Thirst may also be seen in the patients suffering from skin infections along with diabetes mellitus. In this situation, skin infection will not come under control unless high blood sugar level is being checked. In this situation, thirst may manifest because of polyuria.

[32] The presence of raised body temperature may imply the ongoing infective pathology inside the patient. E.g. in cellulitis or pyodermatitis conditions, the person may develop fever.

[33] This may be observed as a result of adverse drug reaction.

[34] Burning sensation may be observed in the patient who is having peripheral neuropathy.

[35] In case of person who is suffering from chronic skin disease, the person may have sequential depletion of nutrients in the form of carbohydrate, fat and protein respectively. If the person is taking very little amount of food, that may lead to weakness.

[36] When an individual is suffering from pemphigus vulgaris, he or she may have initial involvement of oral cavity, thereby he may have either tastelessness (due to poor oral secretion) and later he may have digestive impairment (due to impaired alimentary canal secretion which may occur as a result of autonomic nervous dysfunction).

[37] All the Lakshana present in Kushtha indicates the severity of the illness. For example, the skin lesion present in right palmar surface of hand is much less severe than the widespread skin lesion observed in diffused way in the skin.
- If the skin lesion is associated with fever indicates much severe Lakshana

Thus, all Lakshana mentioned in Kushtha may imply severity of the illness.

[38] Whenever we analyse the patients, we have to take two points into consideration – Rogibala and Rogabala. When the Rogibala is more than the severity of Rogabala, then we can administer much potent medicine, so that the patient can withstand the potency of medicine. If the Rogibala is much less than Rogabala, then the clinician has to use milder form of medication, so that little discomfort to the patient can be ensued.

[39] The presence of thirst implies that the person is having shrinking intravascular compartment. Indirectly, this may imply that shrinking of interstitial and intracellular compartment.

- Loss of appetite[40].
- Appearance of maggots[41] in the wounds.
- *Kushtha* having the dominance of *Vata* and *Kapha*, *Kushtha* having single *Dosha* vitiation are considered to be *Sadhya* (easily curable)[42].
- *Kushtha* with the vitiation of *Kapha* and *Pitta*, *Vata* and *Pitta* is *Krichrasadhya* (difficult to cure)[43].
- *Tvak Gata, Rakta Gata, Mamsa Gata Kushtha, Vata* and *Kapha* dominant *Kushtha* is considered to be *Sadhya* (easy to cure)[44].
- *Medo Gata Kushtha, Pitta* and *Kapha* dominant, *Vata* and *Pitta* dominant *Kushtha* is considered to be *Yapya* (manageable).
- *Asthi Gata Kushtha* and *Majja Gata Kushtha, Kushtha* associated with appearance of maggots, thirst, burning sensation, loss of appetite, *Tridoshaja Kushtha,* separation of body parts from body due to *Kushtha,* reddish discolouration of the eyes, loss of voice and *Kushtha* beyond the control of *Panchakarma* treatment are considered to be *Asadhya* (incurable).

### Differences between Mahakushtha and Kshudrakushtha

| Mahakushtha | Kshudrakushtha |
|---|---|
| Deeper Dhatu affliction seen | Deeper Dhatu affliction not seen |
| Associated with Purvarupa such as Tvak Sankocha, Tvak Bheda, Tvak Achetantva and Angasada | Not associated with Purvarupa as mentioned in the context of Mahakushtha |
| Severe degree of Dosha vitiation is seen | Mild or moderate degree of Dosha vitiation is seen |
| Widespread affliction of skin is seen | Localised or patchy distribution of skin lesions are seen |
| Rogabala is more than Rogibala in most occasions | Rogibala is more than Rogabala |

## Key summary of the chapter

**कुष्णाति शरीरस्थशोणितं विकुरुते इति।** Shabda Kalpa Druma

- As per Shabda Kalpa Druma, Kushtha is a spectrum of diseases where disturbances in Shonita or Rakta of the individual occurs. In most occasions, Tridosha, Tvak, Rakta, Mamsa and Ambu are involved during pathological events of Kushtha and these seven factors are considered as Saptaka Dravya Sangraha. This is considered as Chirakari Vikara. As per Sushruta, this is categorised under Adibala Pravritta Vikara of Adhyatmika Vikara. As far as Udbhava Sthana is concerned, Amashaya is the Udbhava Sthana in case of Pitta and Kapha dominant Kushtha, whereas Pakvashaya is considered as Udbhava Sthana Vata dominant Kushtha. Sanchara Sthana of Kushtha is Sarva Sharira and Vyakta Sthana is Tvak.

**स्यशांशत्यमतिलेदो न या देवण्यमुप्रतिः। कोठानां लोमहर्षच कण्डूस्तोदः अमः क्रमः॥11॥**
**प्रणानामधिकं शूलं शीघ्रोत्पत्तिधिरस्थितिः। वाहः सुताङ्गता चेति कुष्ठठलक्षणमग्रजम्॥ 12॥** Ca.Ci. – 7/11-12

- As far as Purvarupa are concerned, most of the Purvarupa are related to the abnormal structure or functioning of Tvak. Shrama, Klama, Daha, Suptangata are subjective manifestations of Purvarupa.
- Sankhya Samprapti of Kushtha: 7 types of Mahakustha and 18 types of Kushtha which include 7 types of Mahakushtha and 11 types of Kshudrakushtha. 7 types of Mahakushtha are Kapala, Udumbara, Mandala, Rshyajihva, Pundarika, Sidhma and Kakanaka Kushtha. 11 types of Kshudrakushtha are Ekakushtha, Charmakhya, Kitibha, Vipadika, Alasaka, Charmadala, Pama, Visphota, Dadru, Shataru, Vicharchika.
- Sushruta has mentioned 7 types of Dhatugata Kushtha. These are indicative of severity of the disease.
- Duration of the illness, nature of involvement of Dhatu, presence or absence of Purvarupa in the patients of Kushtha determine the diagnosis of Mahakushtha and Kshudrakushtha.

---

**GK**

- The presence of burning sensation implies the destruction of sensory receptors of skin, particularly temperature sensing receptors.

[40] Loss of appetite implies poor digestive fire. It indicates the person is unable to digest the ingested food and unable to digest the medicines too. In other words, neither the nutrients nor the medicines can cross the alimentary canal into intravascular compartment, thence to interstitial and at last to intracellular compartments.

[41] Maggot infestation is a condition in which the fly maggots feed off and develop in the tissues of living organisms. True myiasis results from flies deliberately laying eggs in or on the tissues. This may delay the wound healing.

[42] The Guna common to Vata and Kapha Dosha is Shita Guna. That means when we plan the treatment it has to be Ushna line of treatment has to be administered. Ekadoshaja diseases are considered to be treatable by default as per Ayurveda experts.

[43] This may imply the severity of the disease as Two Dosha vitiation is observed in the individual.

[44] All these are indicative of nature of affliction of body tissue, multitude of Dosha affliction, association of other symptoms and superficial or deep seatedness of the disease.

## Self-Assessment: Questions for Reviews

### Long essay questions

- Define Kushtha, explain the Nidana, Samprapti, Purvarupa, Rupa, Bheda, Upadrava, Sadhyasadhyata of Kushtha
- Explain Kushtha Nidana Panchaka in detail
- Explain Mahakushtha in detail
- Explain Kshudrakushtha in detail

### Short essay questions

- Explain Sidhma Kushtha in detail
- Explain Kshudrakushtha in brief
- Explain the features of Vata Pradhana Kushtha

### MCQs

**1. As per Charaka, Kapha dominant Kushtha is**

a. Kapala; b. Udumbara;
c. Mandala; d. Pundarika

*Answer*: (c)

**2. As per Charaka, the number of Kshudrakushtha is**

a. 7; b. 11;
c. 18; d. Innumerable

*Answer*: (b)

**3. Which of the following is not included in Saptaka Dravya Sangraha?**

a. Tvak; b. Rakta;
c. Mamsa; d. Asthi

*Answer*: (d)

**4. Which of the following is termed as Hansen's disease?**

a. SLE; b. Leprosy;
c. Tuberculosis; d. Syphilis

*Answer*: (b)

5. Psoriasis is

a. Bacterial disease;
b. Viral disease;
c. Parasitic disease;
d. Non infective disease

*Answer*: (d)

**6. Silvery scale is characteristic of which of the following disease?**

a. Tinea vulgaris;
b. Sycosis barbae;
c. Psoriasis;
d. Bilharziasis

*Answer*: (c)

**7. Which of the following is included in Mahakustha?**

a. Ekakushtha; b. Kitibha;
c. Pundarika; d. Vipadika

*Answer*: (c)

**8. Dosha dominance observed in Sidhma Kushtha is**

a. Vata and Pitta;
b. Pitta and Kapha;
c. Vata, Pitta and Kapha;
d. Vata and Kapha

*Answer*: (d)

**9. Udumbara Kushtha is having the dominance of**

a. Vata; b. Pitta;
c. Kapha; d. Vata and Kapha

*Answer*: (b)

**10. As per Sushruta, Kushtha is categorised under**

a. Janmabala Pravritta Vikara;
b. Sanghatabala Pravritta Vikara;
c. Svabhavabala Pravritta Vikara;
d. Adibala Pravritta Vikara

*Answer*: (d)

**11. Mahavastu is the specific Lakshana observed in which of the following type of Kushtha?**

a. Shataru; b. Vicharchika;
c. Charmakhya; d. Ekakushtha

*Answer*: (d)

**12. The skin resembles the skin of the elephant in which of the following?**

a. Ekakushtha; b. Charmakhya;
c. Vipadika; d. Vicharchika

*Answer*: (b)

**13. Which of the following Kshudrakushtha is having the dominance of Kapha Dosha?**

a. Vicharchika; b. Vipadika;
c. Visphota; d. Kitibha

*Answer*: (a)

**14. Sankhya Samprapti of Mahakushtha is**

a. 7; b. 11;
c. 18; d. Innumerabe

*Answer*: (a)

**15. The colour of skin lesion of Sidhma resembles which of the following colour?**

a. Durva; b. Alabu;
c. Atasi; d. Jambu

*Answer*: (b)

### Chapter resources

- Charaka Samhita Nidana Sthana – 5th chapter – Kushtha Nidana Adhyaya
- Charaka Samhita Chikitsa Sthana – 7th chapter – Kushtha Chikitsa Adhyaya
- Sushruta Samhita Nidana Sthana – 5th chapter – Kushtha Nidana Adhyaya
- Madhava Nidana 49th chapter – Kushtha Nidana Adhyaya
- Shabda Kalpa Druma – 2nd volume for definition of Kushtha
- Physical diagnosis – a textbook of symptoms and physical signs by Rustom Jal Vakil and Aspi F Golwalla 13th edition, MPP (Media Promoters and Publishers) Pvt. Ltd, Mumbai, 2010
- A manual on clinical surgery by S Das, 4th edition, Published by S Das, Calcutta, 1998
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.pcds.org.uk, www.medicaljournals.se , www.adam.com, www.thehealthsite.com, www.skinsight.com , www.health.com , www.ayuradvice.com
- Journal of Ayurveda and integrated medical sciences, International journal of Ayurvedic Medicine , www.medscapestatic.com ,www.medicine.com
- www.nhs.uk , www.healthline.com , www.rcjournal.com, www.medicalnewstoday.com , American academy of dermatology , www.clevelandclinic.org, www.orthoinfo.aaos.org , www.wikidoc.org, www.cdn.mdedge.com, www.clinicaladvisor.com , www.verywellhealth.com , www.eminenceorganics.com , www.bestwoundpractice.com , www.magonlinelibrary.com

***

CHAPTER

30

# Shitapitta, Udarda and Kotha

**Learning Objectives**

- ⇨ To learn the concept of Shitapitta
- ⇨ To learn the Nidana Panchaka of Shitapitta mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on progression of the disease
- ⇨ To learn about frostbite, chilblain and immersion (trench) foot

## Introduction

*Shitapitta*, *Udarda* and *Kotha* are spectra of diseases where we can observe skin eruptions influenced by environmental factors, lifestyle and sensitivity. Though, these sets of diseases are involving skin abnormalities, these are not included in *Kushtha* disease spectrum because of specific etiological factors and specific clinical features with atypical progression of the diseases even though the *Tvak* (skin) is afflicted and *Rasa* and *Rakta Dhatu* is involved during the progression of the disease.

## Shitapitta

शीतमारुतसंस्पर्शात्प्रदुष्टौ कफमारुतौ।
पित्तेन सह संभूय वहिरन्तर्विसर्पतः॥1॥ Ma.Ni. – 50/1

- *Shitapitta* is a spectrum of disease where in the person develops eruptions in the skin[1].
- This is caused by the exposure of the skin to the cold environment[2].
- This is having the abnormal vitiation of *Pitta Dosha*

---

GK

[1] Peripheral cold injuries include both freezing and non freezing injuries to the tissues. Tissue freezes quickly when in contact with thermal conductors such as metal or volatile solutions. Other predisposing factors include constrictive clothing or boots, immobility or vasoconstrictive medications.

Frostbite occurs when the tissue temperature falls below 0° C. Ice crystal formation distorts and destroys cellular architecture. Clinically, frostbite is classified as superficial or deep. Superficial frostbite does not entail tissue loss. Classically, frostbite is classified like a burn retrospectively. Depending upon the degree of freezing injuries, four different grading of freeze injuries are classified. 1st degree frostbite causes only erythema and oedema. The appearance of superficial vesiculation surrounded by oedema and erythema is considered as 2nd degree. In 3rd degree frostbite shows haemorrhagic vesicles. 4th degree frostbite injuries damage subcuticular, muscular and osseous tissues.

The two most common non freezing injuries include chilblain (pernio) and immersion (trench) foot. Chilblain results from neuronal and endothelial damage induced by repetitive exposure to dry cold. Young females particularly with a history of Raynaud's phenomenon are at higher risk for chilblain. Persistent vasospasticity and vasculitis can cause erythema, mild oedema and pruritus. Eventually, plaques, blue nodules and ulcerations develop.

Immersion (trench) foot develops from repetitive exposure to wet cold above the freezing point. The feet initially appear cyanotic, cold and oedematous, subsequently leads to the formation of bullae and later liquefaction necrosis.

[2] As the person is exposed to Shita Maruta (cold wind), that will lead to the increase of Shita Guna externally as well as internally. Shita Guna is the common quality observed for Vata and Kapha Dosha. That is the reason, when a person is exposed to Shita quality, there will be increase of Vata and Kapha Dosha is likely.

When an individual is exposed to extreme cold environment, surface area of the human body can freeze. This is called frostbite. This occurs especially in the ear lobes and in the digits of hands and feet. If the freezing is sufficient to cause extensive formation of ice crystals in the cells, permanent damage usually occurs, such as permanent circulatory impairment as well as local tissue damage. Gangrene will be sequel of this pathological event. In this situation, there will be peripheral vaso constriction as well as skeletal muscle contraction. This will be associated with piloerection means hairs standing on the end. This occurs due to the stimulation of sympathetic nervous system and there will be increased thermogenesis due to sympathetic excitation heat production and thyroxine secretion.

along with the association of *Kapha* and *Vata Dosha*[3].

- The clinical features can be observed both internally and externally[4].

## Purvarupa of Shitapitta

पिपासारुचिहृल्लासदेहसादाङ्गगौरवम्।
रक्तलोचनता तेषां पूर्वरूपस्य लक्षणम्॥2॥ Ma.Ni. – 50/2

- **Pipasa**[5] – thirst
- **Aruchi**[6] – tastelessness
- **Hrillasa** – nausea
- **Dehasada** – sluggish movement of the body parts
- **Anga gourava**[7] – heaviness of the body parts
- **Rakta lochanata**[8] – reddish discolouration of the eyes

## Lakshana of Shitapitta and Udarda[9]

वरीष्टसंस्थानः शोथः संजायते बहिः।
सकण्डूस्तोदबहुलइछर्दिज्वरविदाहवान्॥3॥
उदर्दमिति तं विद्याच्छीतपित्तमथापरे।
वाताधिकं शीतपित्तमुदर्दस्तु कफाधिकः॥4॥ Ma.Ni. – 50/3,4

- **Varati Damshta Samsthana Shotha**[10] – patchy elevation observed in the skin
- **Kandu**[11] – itching
- **Toda Bahula**[12] – pricking type of pain
- **Chardi**[13] – vomiting
- **Jvara**[14] – raised body temperature
- **Vidaha**[15] – burning sensation in the area of skin eruption

Above said *Lakshana* observed along with vitiated *Vata,* is termed as *Shitapitta* as per one author and same *Lakshana* seen along with vitiated *Kapha Dosha* is termed as *Udarda.*

## Udarda

सोत्सङ्गैश्च सरागैश्च कण्डूमद्भिश्च मण्डलैः।
शैशिरः कफजो व्याधिरुदर्द इति कीर्तितः॥5॥ Ma.Ni. – 50/5

---

Once the vascular endothelium is damaged, stasis of the blood occurs rapidly to microvascular thrombosis. The microvasculature begins to collapse, arteriovenous shunting increases tissue pressures and oedema forms. Finally, thrombosis, ischemia and superficial necrosis appear.

[3] वाताहते नास्ति रुजा न पाकः पित्ताते नास्ति कफाच्च पूयः॥ तस्मात् समस्तान् परिपाककाले पचन्ति शोफांस्त्रय एव दोषाः॥8॥
कालान्तरेणाभ्युदितं तु पित्तं कृत्वा वशे वातकफौ प्रसह्य॥ पचत्यतः शोणितमेव पाको मतोऽपरेषां विदुषां द्वितीयः॥9॥ Su.Su. – 17/8,9
The above said verse represents the Dosha vitiation in the body and its impact on the development of pathological events. When the person is having any kind of pain, it indicates the involvement of Vata Dosha. When the person is showing the stages of suppuration, it indicates the vitiation of Pitta Dosha. When the person is developing the pus formation during the course of the disease, it suggests the Kapha Dosha involvement during the progression of the disease. When the person is having the progression of pathological events in Vranashotha (inflammation), we can predict the involvement of Rakta during the pathogenesis.
When the person is exposed to Shita environment continuously for longer time, there will be formation of the gangrene in the lower limb. When we observe the gangrenous changes, it implies the rapidity of development of symptoms (Pitta Dosha involvement) and pus formation (Kapha Dosha vitiation).

[4] When the person is exposed to ice cold water for a period of 20 to 30 minutes, the person dies because of cardiac arrest or atrial fibrillation. The person can also have the development of freezing of the ear lobes and digits of the hands and feet.

[5] This can be attributable to sympathetic nervous system activation. This will cause peripheral vaso constriction to prevent the heat loss from the body. As there is sympathetic nervous system activation, there will be inhibition of glands of gastro intestinal tract, thus the person may have manifestation of thirst due to inhibition of salivary secretion.

[6] This can be attributable to again sympathetic nervous system stimulation leading to the poor secretion from the glands of alimentary canal. As the person will have poor secretion from the mouth and stomach, he will likely to have tastelessness.

[7] Due to the peripheral vaso constriction, there will be stasis of the blood in the intravascular compartment, interstitial compartment. This mechanism leads to the feeling of the heaviness of the body parts, thus the person may have sluggish movement of body parts.

[8] The term Rakta Lochanata refers to the reddish discolouration of the eyes. Eye is considered to be one of the important organ to be exposed to the cold environment apart from skin, ears etc. Thus, continuous exposure to cold environment leads to the damage to the peripheral blood vessels supplying the ocular region leading to the reddish discolouration of the eyes.

[9] Based on the similarity between the pathological events happening between Shitapitta and Udarda, there will be bleeding tendency below the skin. Depending upon the size of the bleeding spots observed across the skin determines the diagnosis of Shitapitta and Udarda.

[10] When the person is having peripheral vaso constriction, subcutaneous bleeding can be manifested. Superficial crops of small capillary haemorrhages can be referred as petechiae. These are best seen in skin, eyes and mucous membranes. Ecchymosis is the term used in case of confluence of petechiae or haemorrhages from larger blood vessels. Multiple bruises in the form of ecchymosis or haematoma indicates the bleeding diathesis and presence of petechiae indicates the abnormality of platelets and vessel wall. In this context, you have to consider the abnormality of vessel wall.

[11] This clinical feature is observed in one of non freezing injury developed by exposure to dry cold. This symptom occurs due to persistent vasospasticity and vasculitis.

[12] The presence of pricking type of pain indicates inflammatory reaction happening at the site of exposure to cold wind.

[13] Vomiting observed in the patient suffering from the clinical condition can be attributable to the sepsis manifests after the appearance of necrosis.

[14] The presence of fever indicates either the inflammation or infection occurring at the site of the cold exposure.

[15] Burning sensation is observed in chilblain which manifests due to neuronal damage at the site of non freezing injury.

- *Udarda*[16] is a spectrum of skin eruption where there is vitiation of *Kapha Dosha*.
- This is associated with circular, reddish, skin eruptions or elevations along with profuse itching.
- This is more common in *Shishira Rtu* (winter season).

## Description of Utkotha and Kotha

असम्यग्वमनोदीर्णपित्तश्लेष्मान्ननिग्रहैः।
मण्डलानि सकण्डूनि रागवन्ति बहूनि च।
उत्कोठः सानुबन्धश्च कोठ इत्यभिधीयते॥6॥ Ma.Ni. – 50/6

- *Utkotha* is a spectrum of skin eruptions which manifests due to improper *Vamana* (emesis) therapy[17].
- There will be vitiation of *Pitta, Kapha Dosha* and person will be avoiding consumption of food.
- The person will be presented with multiple, reddish, circular lesions associated with itching. This is also being termed as *Kotha*.
- The difference between *Kotha* and *Utkotha* is in recurrence. If the person is presented with skin eruptions once, then such type of disease is termed as *Kotha* and if the person is presented with repeated recurrences of skin eruptions is termed as *Utkotha*.

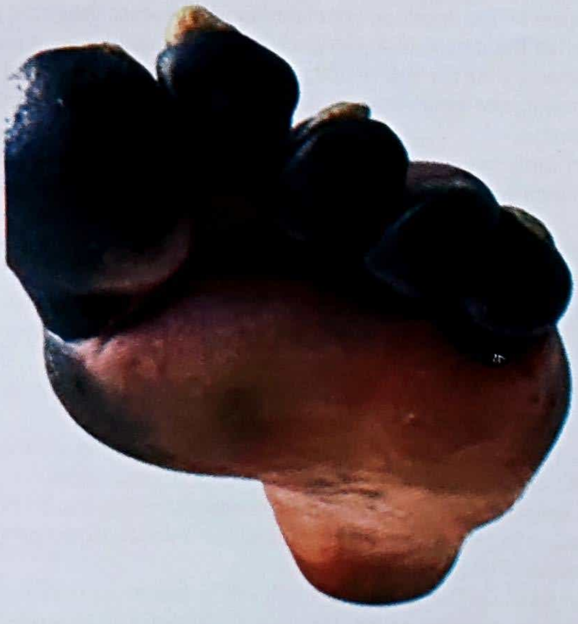


**Figure 118:** Formation of Kotha or necrosis

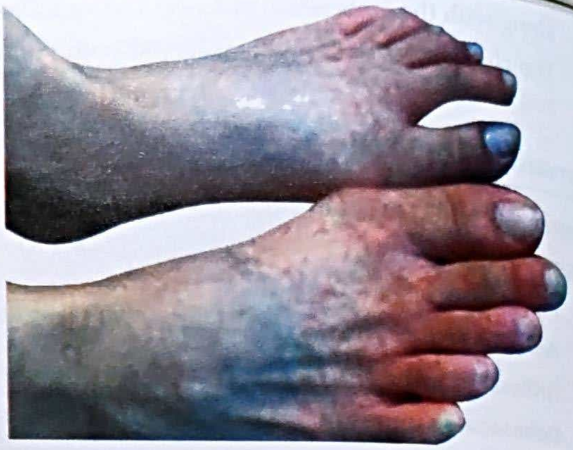


**Figure 119:** Image of chilblain

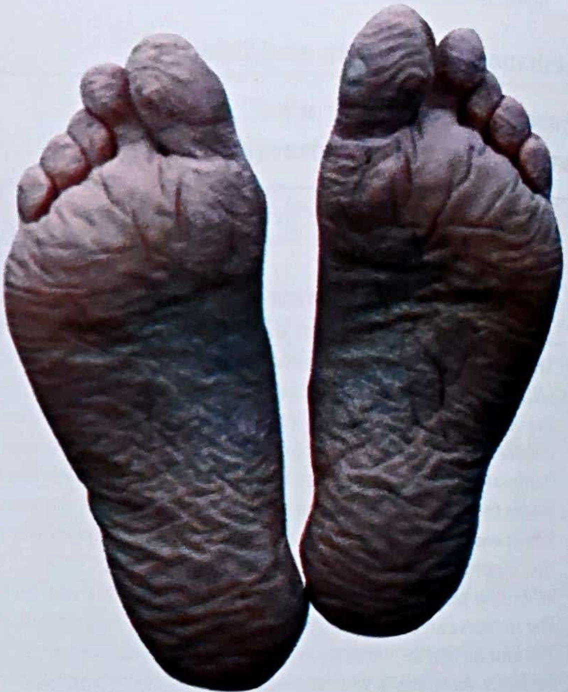


**Figure 120:** Image of trench foot

**To summarise,** this spectrum of diseases is characterized by clinical manifestation developed due to absent or poor peripheral blood supply. This can usually occur in either in upper or lower limbs. This is identified easily as these are visible in the integumentary system. Similar pathological events can occur inside human body which can result in *Shula* or *Gulma* or *Hridroga* depending upon the site of the lesion which can be identified by appropriate laboratory investigations.

---

GK

[16] Udarda can be attributable to the skin manifestations observed after the exposure to cold atmosphere.

[17] As per Ayurveda literatures, Vamana (emesis) therapy is performed when an individual is suffering from extreme vitiation of Kapha Dosha and the person is physically fit to perform Vamana therapy. Due to improper preoperative procedure such as improper Snehana (oleation therapy) and Svedana (fomentation therapy) or improper diet and regimen during Snehana or Svedana or improper timing of Vamana therapy or improper dosage of Vamana drug, the vitiated Kapha Dosha may not move completely to the exterior. This will lead to the oblique movement of vitiated Dosha to the periphery.
As per current understanding, if pathogens are not eliminated from the stomach through emesis, these will enter into the intravascular compartment. From intravascular compartment, the pathogens will move into interstitial compartment and ultimately these pathogens can find the place in intracellular compartment. In this situation, intracellular compartment of the skin.

### Key points of the chapter

- Shitapitta, Udarda and Kotha are the spectra of the diseases which occur as a result of exposure to cold environment, improper diet and regimen following emesis therapy respectively. In these conditions, the person will have skin manifestations.
- Shitapitta, Udarda and Kotha will be manifested due to the exposure to Shita quality to the Tvak region. There will be affliction of Rasa, Rakta Dhatu during the course of the manifestation of the disease. There will be affliction of Rasavaha and Raktavaha Srotas during the progression of the disease.
- Frostbite, chilblain and immersion (trench) foot are the clinical conditions which may mimic the features of the Shitapitta, Udarda and Kotha.

### Probable questions asked in the examination

#### Long essay questions

- Explain Shitapitta in detail and write the differences between Shitapitta, Udarda and Kotha

#### Short essays

- Explain Shitapitta, Udarda and Kotha

### MCQs

1. **Dosha dominance observed in Shita Pitta are**

   a. Vata and Pitta; b. Vata and Kapha;
   c. Pitta and Kapha; d. Kapha only

*Answer*: (b)

2. **The disease which manifests due to the improper emesis therapy is**

   a. Shitapitta; b. Udarda;
   c. Utkotha; d. Udavarta

*Answer*: (c)

3. **Vata and Kapha vitiation at a particular time is seen in**

   a. Shitapitta; b. Raktapita;
   c. Amlapitta; d. Ushnavata

*Answer*: (a)

4. **Udarda is observed in which of the following season?**

   a. Vasanta Rtu; b. Sharat Rtu;
   c. Shishira Rtu; d. Varsha Rtu

*Answer*: (c)

5. **Frostbite is seen in which part of the body?**

   a. Abdomen; b. Back
   c. Neck; d. Digits of upper and lower limbs;

*Answer*: (d)

6. **The predominant Dosha responsible for the manifestation of Udarda is**

   a. Vata; b. Kapha;
   c. Pitta; d. Vata and Kapha

*Answer*: (b)

7. **Itching, annular inflammatory red patches dominated with Kapha are the Lakshana of**

   a. Shitapitta; b. Kotha;
   c. Udarda; d. All of the above

*Answer*: (c)

8. **Varati Dashta Samsthana is the term explained in the context of**

   a. Shitapitta; b. Kotha;
   c. Visarpa; d. Udarda

*Answer*: (a)

9. **Frequent remission and exacerbation of symptoms are seen in**

   a. Udarda; b. Kotha;
   c. Shitapitta; d. None of the above

*Answer*: (c)

10. **Udbhava Sthana of Shitapitta is**

    a. Amashaya; b. Pakvashaya;
    c. Both Amashaya and Pakvashaya;
    d. No Udbhava Sthana is involved in the manifestation of the disease

*Answer*: (d)

### Chapter resources

- Madhava Nidana – 50th chapter
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- clinicaladvisor.com, firstderm.com, healthline.com

***

CHAPTER

31

# Shvitra

**Learning Objectives**

- ⇨ To know the concept of Shvitra
- ⇨ To enlist the types of Shvitra
- ⇨ To know about the Lakshana and Sadhyasadhyata of Shvitra

## Introduction

*Shvitra*[1] is a spectrum of diseases where in whitish discolouration of the skin is observed in the affected individuals. This is said to be manifested in the individuals due to the vitiation of all three *Dosha* in most of the occasions.

In other words, there is a possibility of vitiation of one *Dosha* or two *Dosha* during the pathogenesis and progression of the disease.

The site of the affliction of the disease is *Tvak*. The affliction of *Dushya* in this condition are *Rasa*, *Rakta* (primary *Dhatu* afflicted), *Mamsa* and *Ambu* (similar to *Kushtha*). *Srotas* afflicted in the disease are *Raktavaha Srotas* (primary *Srotas*), *Rasavaha Srotas*, *Mamsavaha Srotas* and *Udakavaha Srotas*.

Type of *Srotodushti* involved in the disease are *Sanga* and *Vimargagamana*. As far as *Sadhyasadhyata* of the disease is concerned, this is considered as *Asadhya* (incurable) in nature.

**दारुणं चारुणं श्वित्रं किलासं नामभिस्त्रिभिः।**
**विज्ञेयं त्रिविधं तच्चै त्रिदोषं प्रायशश्च तत्॥173॥**

Ca.Ci. – 7/173

*Shvitra* is caused by the vitiation of all three *Dosha* in most of the occasions. Sometimes, either single *Dosha* or dual *Dosha* vitiation may produce the manifestation of *Shvitra*. It is classified into 3: *Daruna*, *Charuna* and *Shvitra*. This is also being termed as *Kilasa*.

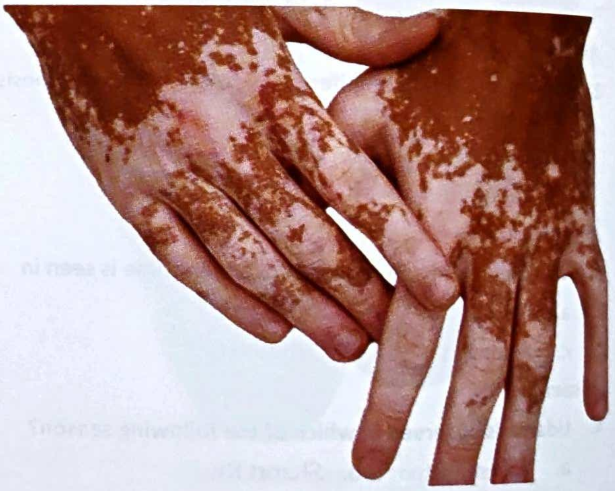


Figure 121: Image of Shvitra

## Clinical features of Shvitra

**दोषे रक्ताश्रिते रक्तं तानं मांससमाश्रिते।**
**श्वेतं मेदः श्रिते श्वित्रं गुरु तच्चोत्तरोत्तरम्॥174॥** Ca.Ci. – 7/174

- If the vitiated *Dosha* reside in *Rakta Dhatu* and may exhibit the patches in skin that is red in colour. This is called as *Daruna* variety of *Shvitra*.
- If the vitiated *Dosha* reside in *Mamsa Dhatu*, then the colour of the skin may turn coppery. This is called as *Charuna* variety of *Shvitra*.
- If the vitiated *Dosha* reside in *Medo Dhatu*, then the

---

**GK**

[1] This disease can be attributable to albinism where melanin pigment is absent in the human body. Melanin is the pigment which gives colour to the skin, hair and eyes. These people are more prone to sunburn and carcinoma of the skin and its appendages.
- This disease can affect people of all races and all ethnic groups.
- This disease is not contagious and will not spread to normal individuals from the suffering individuals. This disease is genetically transferrable.

colour of the skin may appear white. This is called as *Shvitra* proper.

- As far as severity of the *Shvitra* is concerned, the *Shvitra* appearing in *Rakta Dhatu* is of milder form; the Shvitra appearing in *Mamsa Dhatu* is of moderate form and the *Shvitra* observed in *Medo Dhatu* is considered as severe form of the disease.

## Sadhyasadhyata of Shvitra

**यत् परस्परतोऽभिन्नं बहु यद्रतलोमयत्।**
**यच्च वर्षगणोत्पन्नं तच्छित्रं नैव सिध्यति॥175॥**
**अरक्तलोम तनु यत् पाण्डु नातिचिरोत्थितम्।**
**मध्यावकारो चोच्छनं श्वित्रं तत्साध्यमुच्यते॥176॥**

Ca.Ci. – 7/175-176

- If the patches[2] in the skin are mutually attached or matted together, if there are multiple lesions surrounded by red hairs for longer duration are said to be Asadhya.
- If the patches in the skin are surrounded by other than reddish hairs, having white and thin patches which have recently manifested, that possess elevated margins between two patches are said to be Sadhya.

## Self-Assessment: Questions for Review

### Long essay questions

- Explain Shvitra in detail
- Describe Shvitra with current understanding

### Short essay questions

- Describe Shvitra in brief
- Describe the types of Shvitra

### MCQs

**1. Kilasa is the synonym of**

a. Shvitra;
b. Visarpa;
c. Kushtha;
d. Kamala

*Answer*: (a)

**2. As per Charaka, Sankhya Samprapti of Kilasa is**

a. 1;
b. 2;
c. 3;
d. 4

*Answer*: (c)

**3. Coppery discolouration of Shvitra is seen in which of the following type of Shvitra?**

a. Daruna;
b. Charuna;
c. Shvitra;
d. All of the above

*Answer*: (b)

**4. Which of the following is responsible for dark complexion of the body?**

a. Sweat glands;
b. Melanin;
c. Keratin;
d. Androgen

*Answer*: (b)

**5. Daruna, Charuna and Shvitra are the types of**

a. Visarpa;
b. Kushtha;
c. Ajirna;
d. Kilasa

*Answer*: (d)

## Chapter resources

- Charaka Samhita Chikitsa Sthana – Kushtha Chikitsa Adhyaya
- Madhava Nidana 49th chapter – Kushtha Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.healthline.com

- Shvitra is a spectrum of diseases where in whitish discolouration of the skin is observed in the affected individuals. All three Dosha are said to be responsible for the manifestation of the disease. It is also being said that either one Dosha or dual Dosha vitiation may also be responsible for the manifestation of the disease. Tvak is afflicted in the disease. Rasavaha, Raktavaha, Mamsavaha and Udakavaha Srotas are afflicted in the disease with Sanga and Vimargagamana as the type of Srotodushti involved during the progression of the disease.
- It is also called as Kilasa. 3 types of Shvitra (Kilasa) are mentioned. Daruna, Charuna and Shvitra are the types mentioned in Charaka Samhita where reddish, coppery and whitish patches observed in the skin respectively.
- Diffuse patches of Shvitra are incurable whereas small, discrete patches are considerably easily manageable.

---

GK

[2] As far as surface area of the skin is concerned, it has the surface area of 1.5 to 2 sqm (16-22 sqft) in an average adult human being and it is second largest organ of the human body, the first being the inside of the small intestine which is 15 to 20 times larger than the skin surface. This implies larger area of the skin is involved. This is easily noticeable by the people surrounding the suffering people. Whereas smaller patches may be unnoticeable by the surrounding people.

***

CHAPTER

# 32

# Visarpa

## Learning Objectives

- ⇨ To learn the concept of Visarpa
- ⇨ To learn the Nidana and Samprapti of Visarpa in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To enlist the types of Visarpa
- ⇨ To learn the Purvarupa of Visarpa
- ⇨ To know the features of Bahya and Abhyantara Visarpa
- ⇨ To learn Sadhyasadhyata of Visarpa
- ⇨ To differentiate Doshaja Visarpa
- ⇨ To learn Agni, Kardama and Granthi Visarpa

## Introduction

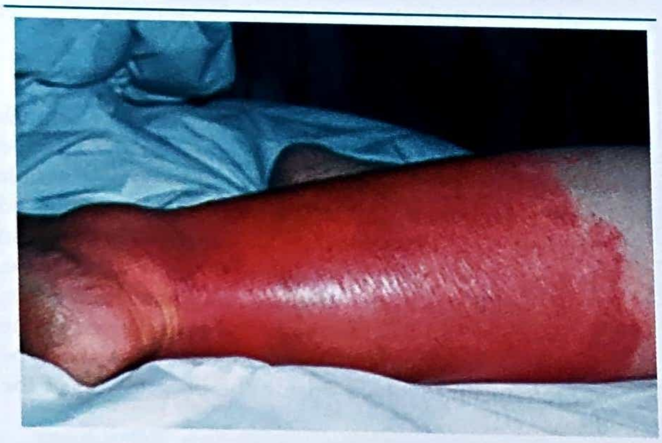


**Figure 122:** Pratyatma Lakshana of Visarpa

*Visarpa* is a spectrum of diseases where there will be rapid vitiation of *Dosha* involving *Tvak* (skin). It involves *Tridosha, Tvak, Rakta, Mamsa* and *Lasika*. These seven factors are considered as *Saptaka Dravya Sangraha*[1]. This is considered to be *Ashukari* (fast spreading and fast progressing) *Vikara*. Though the disease is considered to be manifested due to the vitiation of all three *Dosha, Pitta Dosha* is the primary *Dosha* responsible for the manifestation of the disease. As far as the classification of diseases as per *Sushruta*, this disease is categorised under *Amashayasamuttha* and *Sharirika* varieties of *Doshabala Pravritta Vikara of Adhyatmika Vikara*. Based on the above context, *Amashaya* is considered as *Udbhava Sthana* of the disease, *Sarvasharira* is considered as *Sanchara Sthana* and *Tvak* is *Vyakta Sthana* of the disease. *Rakvataha Srotas* is afflicted during the progression of the disease with *Sanga* and *Vimargagamana* as the type of *Srotodushti* involved during the progression. In the following pages, we are going to analyse the concept of *Visarpa* elaborately.

## Pratyatma Lakshana of Visarpa

**विविधं सर्पति यतो विसर्पस्तेन स स्मृतः।**
**परिसर्पोऽथवा नाम्ना सर्वतः परिसर्पणात्॥11॥** Ca.Ci. – 21/11

The cardinal feature of the disease *Visarpa* is fast or rapid spreading nature in different directions in the skin. As the spread of the disease in different directions, this is also termed as *Parisarpa*.

---

**GK**

[1] As per Ayurveda, two diseases are having Saptaka Dravya Sangraha – Kushtha and Visarpa. The difference between Kushtha and Visarpa is Kustha is a Chirakari Vikara (slowly progressing), whereas Visarpa is a Ashukari (fast progressive) Vikara. Kushtha is a disease manifested due to the vitiation of Tridosha, whereas Visarpa is Pitta dominant disease, but Rakta Dhatu is mainly afflicted during the progression of the disease.

## Nidana of Visarpa

लवणाम्लकटूष्णानां रसानामति सेवनात्।
दध्यम्लमस्तुशुक्तानां सुरासौवीरकस्य च॥16॥
व्यापन्नबहुमद्योष्णरागपाडवसेवनात्।
शाकानां हरितानां च सेवनाच्च विदाहिनाम्॥17॥
कूर्चिकानां किलाटानां सेवनान्मन्दकस्य च।
दक्षः शाण्डाकि पूर्वाणामासुतानां च सेवनात्॥18॥
तिलमापकुलत्थानां तैलानां पैष्टिकस्य च।
ग्राम्यानूपौदकानां च मांसानां लशुनस्य च॥159॥
प्रक्लिन्नानामसात्म्यानां विरुद्धानां च सेवनात्।
अत्यादानाद्दिवास्वप्नादजीर्णाध्यशनात् क्षतात्॥20॥
क्षेतबन्धप्रपतनाद्धर्मकर्मातिसेवनात्।
विषवाताग्निदोषाश्च विसर्पाणां समुद्भवः॥21॥ Ca.Ci. – 21/16-21

- Excess consumption of *Lavana* (salt), *Amla* (sour), *Katu* (pungent) *Rasa* substances[2]
- Excess consumption of *Ushna* (hot in potency) substances[3]
- Excess consumption of *Dadhi* (curds) and other intoxicating substances[4]
- Excess consumption of improperly prepared wine and other intoxicating substances[5]
- Excess consumption of green leafy vegetables[6]
- Excess consumption of substances which lead to burning sensation in the body[7]
- Excess consumption of curds and preparations made by curds[8]
- Consumption of sesamum seeds, blackgram items, horse gram items, oily items, flour[9]
- Consumption of meat of domestic, marshy animals and aquatic animals[10]
- Consumption of garlic[11]

---

GK

[2] Lavana, Amla and Katu Rasa substances are having Tejo Mahabhuta predominance in them. Excess consumption of these substances are likely to increase the Pitta Dosha abnormally.
- When an individual continuously consuming these Rasa substances, that will lead to inflammation of gastric mucosa, poor functioning of digestive juices (more fluid entry into stomach because of excess presence of inflammatory markers which are nothing but proteins, poor functioning of hydrochloric acid, poor conversion of pepsinogen into pepsin).
- Nutrient depletion inside the body (sequential depletion of carbohydrates, fats and proteins) leading to ketoacidosis and lactic acidosis.
- This will lead to lowered immune status. Thus, this aetiology is not directly responsible for the manifestation of Visarpa, this becomes an indirect aetiological factor for Visarpa manifestation.

[3] Excess consumption of Ushna Virya substances refers to excess consumption of green chilli or red chilli or substances having masala items. This is resposnbie for the increase of Tejo Mahabhuta in the body. Thus, this may lead to the abnormal increase of Pitta Dosha in the body. Refer the context of Lavana, Amla and Katu substances and their effect on the body for this context.

[4] Excess consumption of Dadhi having Amla Rasa in particular or Dadhi which is prepared by adding green chilli, salt, asafoetida etc will be responsible for the increase of Tejo Mahabhuta and thus Pitta Dosha will be vitiated.
- Madya (alcoholic beverages) are having Amla Rasa, Ushna Virya and Amla Vipaka. If an individual is consuming these substances in excess, this may lead to the increase of Tejo Mahabhuta and thus there will be vitiation of Pitta Dosha.

[5] Madya (alcoholic beverages) are having Amla Rasa, Ushna Virya and Amla Vipaka. If an individual is consuming these substances in excess, this may lead to the increase of Tejo Mahabhuta and thus there will be vitiation of Pitta Dosha.

[6] This is a diagram of the anatomy of a plant with labels of structural parts of the plants and the roots. 1. Shoot system. 2. Root system. 3. Hypocotyl. 4. Terminal bud. 5. Leaf blade. 6. Internode. 7. Axillary bud. 8. Petiole. 9. Stem. 10. Node. 11. Tap root. 12. Root hairs. 13. Root tip. 14. Root cap
- The term Harita Shaka refers to stems of green leafy vegetables. When we speak of stems of plants, it contains xylems and phloems. The xylem will carry the water and nutrients from roots to upper part of the plant, wherein phloem will carry down food prepared by the leaf to different parts of the plants.
- In monocots, the number of xylem and phloem is 8 and in dicots, the number is about 4.
- When one consumes stems of green leafy vegetabes, it may contain pathogens in the phloem, if an individual consumes these stems, may be at risk of development of disease. When an individual consumes, that may lead to inflammation of the stomach leading to inflammatory markers, which are proteins and leading to the pathological events as discussed earlier.

[7] These substances are responsible for the increase of Tejo Mahabhuta in the body. When these substances consumed in exess, that may lead to vitiation of Pitta Dosha in the body.
- Excess consumption of these substances may lead to inflammation of the alimentary canal.

[8] गुरूष्णस्निग्धमधुरा बलोपचयवर्धनाः। वृष्याः परं वातहराः कफपित्तविवर्धनाः।। Ca.Su. – 27/56
The qualities of meat of above said animals are Guru (heavy to digest), Ushna Virya (hot in potency), Snigdha (unctuous), responsible for the vitiation of Pitta and Kapha in the body. Meat in general lacks fibrous material, thus reducing the peristaltic movements of the alimentary canal. The contents mixed with meat may lead to the inflammation of the alimentary canal, thus, may lead to the abnormal increase of Pitta Dosha in the body.

[9] क्रिमिकुष्ठकिलासघ्नो वातघ्नो गुल्मनाशनः। स्निग्धश्चोष्णश्च वृष्यश्च लशुनः कटुको गुरुः।। Ca.Su. – 27/176
The qualities of Lashuna (garlic) are Snigdha (unctuous), Ushna Virya (hot in potency), Katu (pungent in taste), Guru (heavy to digest) are responsible for the increase of Pitta Dosha in the body.

[10] If an individual is excessively indulging in these kinds of food intake, will lead to the inflammation of alimentary canal, which futher leads to the poor absorption of nutrients from the body leading to sequential depletion of carbohydrates, fats and proteins. Thus, the person may have lowered immune status.

[11] While analysing this etiological factor, we have to concentrate on two different aspects: Sleeping during day time and time of sleep i.e. after consumption of food in the noon time.

- Consumption of decomposed food substances[12]
- Consumption of unwholesome food substances[13]
- Consumption of incompatible food substances
- Consumption of more amount of food at a time
- Sleeping during day time
- Consumption of food substances prior to digestion of previously ingested meal
- Injury to the body
- Falling of the bandage of the wound
- Exposure to the toxic air, fire in excess

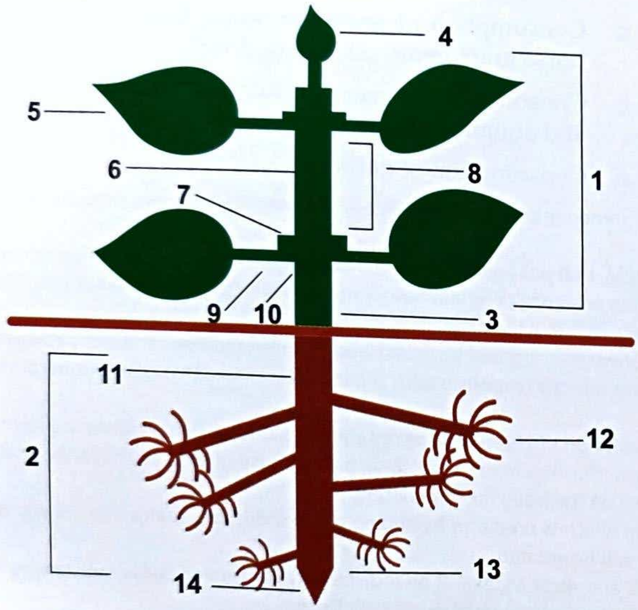
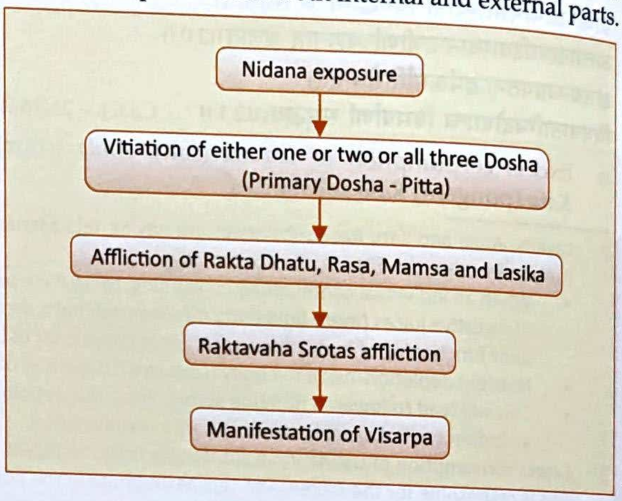


**Figure 123:** Harita Shaka

## Samprapti of Visarpa

एतैर्निदानैर्व्यामिश्रैः कुपिता मारुतादयः।
दूष्यान् संदृष्य रक्तादीन् विसर्पन्त्यहिताशिनांम्।। Ca.Ci. – 21/22
वहिःश्रितः श्रितश्चान्तस्तथा चोभयसंश्रितः।
विसर्पो बलमेतेषां ज्ञेयं गुरु यथोत्तरम्।।2 3 ।। Ca.Ci. – 21/23

- Vitiation of *Dosha* by consumption of above said one or more etiological factors
- Affliction of *Rakta* etc *Dhatu* takes place by these vitiated *Dosha*
- Manifestation of *Visarpa* takes place.
- Spread of the disease takes place to external parts, internal parts and to both internal and external parts.


Nidana exposure
Vitiation of either one or two or all three Dosha (Primary Dosha - Pitta)
Affliction of Rakta Dhatu, Rasa, Mamsa and Lasika
Raktavaha Srotas affliction
Manifestation of Visarpa

## Samprapti Ghataka

- **Dosha :** *Vata Pradhana Tridosha*
- **Dushya :** *Rakta*
- **Srotas :** *Raktavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Mandagni, Raktadhatvagnimandya*
- **Ama :** *Jatharagnijanya* and *Rakta Dhatvagninanya*

**GK**

- Sleeping during day time, the person will have relaxation of most of the muscles of the body. This includes the relaxation of tone of airway dilator muscles results in collapse in the upper airways during sleep. Because of this mechanism, the person will have increased mouth breathing which results in snoring.
- When an individual goes for sleep soon after the lunch, the body will have increased vascularity towards gastrointestinal compartment and there will be poor blood circulation to the nervous system and because of this reason, the person will have natural tendency of sleepiness during day time.
- During sleep, there will parasympathetic nervous system stimulation, this will lead to the enhanced alimentary secretion and there will be poor muscular activity and this will cause poor digestion of food.

[12] As food enters the stomach, it forms concentric circles of the food in the stomach, the newest food lying close to the oesophageal opening and oldest food lying nearest the outer wall of stomach. This leads to the stretching of the stomach. When there is beginning of the stretching of stomach, leads to the generation of vagovagal reflex from the stomach to the brainstem and then back to the stomach reduces the tone of muscle of the stomach. This leads to the outward bulge of the stomach, accommodating greater quantity of food. When stomach is completely relaxed, it accumulates 0.8 – 1.5 liters.

Pylorus is usually open enough for water and other fluids to empty from the stomach to duodenum with ease. But when an individual consumes food, this leads to the closure of pyloric sphincter.

As the person consumes food in the middle of meal times, there will be poor digestive fire also. The pH of gastric juice should be between 1.8 to 3.5. But after the consumption of frequent meals prior to the digestion of food in the stomach, increases the pH of gastric juice more than 3.5 moving towards alkalinity. In this state, pepsinogen will not be converted into active pepsin which converts the macromolecules into intermediate molecules. Thus, the person may have a state of indigestion in case of consumption of food between the meal times.

[13] These aetiological factors are directly responsible for the contact of pathogens to the injured part of the body, thus increasing the risk of the development of infection.

- **Udbhava Sthana :**
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Tvak*
- **Rogamarga :** *Abhyantara* and *Bahya*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*
- **Vyadhi Svabhava :** *Ashukari*

## Types of Visarpa

स च सप्तविधो दोषैर्विज्ञेयः सप्तधातुकः।
पृथक् त्रयस्त्रिभिश्चैको विसर्पो द्वन्द्वास्त्रयः॥12॥
वातिकः पैत्तिकश्चैव कफजः सान्निपातिकः।
चत्वार एते विसर्पा वक्ष्यन्ते द्वन्द्वजास्त्रयः॥13॥
आग्नेयो वातपित्ताभ्यां ग्रन्ध्याख्यः कफवातजः।
यस्तु कर्दमको घोरः स पित्तकफसंभवः॥14॥ Ca.Ci. – 21/12-14

**Sankhya Samprapti:** 7 types based on *Dosha* dominance

- *Vataja Visarpa*
- *Pittaja Visarpa*
- *Kaphaja Visarpa*
- *Vata Pittaja Visarpa – Agni Visarpa*
- *Vata Kaphaja Visarpa – Granthi Visarpa*
- *Pitta Kaphaja Visarpa – Kardama Visarpa*
- *Sannipataja Visarpa – Vata Pitta* and *Kapha Dosha* dominance

## Vataja Visarpa

रूक्षोष्णैः केवलो वायुः पूरणैर्वा समावृतः।
प्रदुष्टो दूषयन् दूष्यान् विसर्पति यथाबलम्॥29॥

तस्य रूपाणि भ्रमदवथुपिपासा निस्तोदशूलाङ्ग- मदोद्वेष्टन कम्पज्वरतमकका सास्थिसंधिभेदविश्लेषणवेपनारोचकाविपाकाश्चक्षुषोराकुलत्वमस्त्रागमनं पिपीलिकासंचार इव चाङ्गेषु, यस्मिंश्चावकाशे विसर्पो विसर्पति सोऽवकाशः श्यावारुणाभासः श्वयथुमान् निस्तोदभेदशूलायामसंकोचहर्षस्फुरणैरतिमात्रं प्रपीड्यते, अनुपक्रान्तश्चोपचीयते शीघ्र- भेदैः स्फोटकैस्तनुभिररुणाभैः श्यावैर्वा तनुविशदा- रुणाल्पास्रावैः, विबद्धवातमूत्रपुरीषश्च भवति, निदानोकानि चास्य नोपशेरते विपरीतानि चोप- शेरत इति वातविसर्पः॥30॥ Ca.Ci. – 21/29,30

- Consumption of *Ruksha* (dry) substances
- Consumption of *Ushna Virya* (hot in potency) substances
- *Vata* gets vitiated vitiating *Rakta* etc *Dushya*

## Lakshana produced in Vataja Visarpa

- Giddiness
- Burning sensation
- Thirst
- Pricking type of pain
- Abdominal pain
- Body ache
- Muscle cramps
- Involuntary movements
- Raised body temperature
- Darkness in front of the eyes
- Cough
- Tearing type of pain in the bones and joints
- Looseness of the joints
- Trembling of the body parts
- Tastelessness
- Impaired digestion
- Congestion in the eyes
- Watering from the eyes
- Feeling as if ants crawling on the body (tingling sensation)
- Blackish or reddish discolouration of the affected part of the body with swelling
- Cutting, tearing type of pain, feeling of expansion, contraction, horripulation, and quivering of the skin.
- If not treated accordingly, it gives rise to rapid progression, small blackish or reddish skin eruptions with clear reddish and scanty discharge.
- The patient suffers from retention of flatus, faeces and urine.
- The etiological factors which is responsible for the vitiation of *Vata Dosha* will worsen and the factors which pacify *Vata Dosha* the *Lakshana* of *Vataja Visarpa*.

## Pittaja Visarpa

पित्तमुष्णोपचारेण विदाह्यम्लाशनैश्चितम्।
दुष्यान् संदूष्य धमनीः पूरयन् वै विसर्पति॥31॥

तस्य रूपाणि-ज्वरस्तृष्णा मूर्च्छा मोहश्छर्दिर- रोकोऽङ्गभेदः स्वेदोऽति मात्र मन्तर्दाहः प्रलापः शिरोरुक् चक्षुषोराकुलत्वमस्वप्नमरति भ्रमः शीत- वातवारितर्षोऽतिमात्रं हरितहारिद्रनेत्रमूत्रवर्चस्त्वं हरितहारिद्ररूपदर्शनं च यस्मिंश्चावकाशे विसर्पो - नुसर्पति सोऽवकाशस्ताम्र हरितहारिद्रनीलकृष्णरतानां वर्णानामन्यतमं पुष्यति, सोत्सेधैश्चातिमात्रं दाहसंभेदनपरीतैः स्फोटकैरुपचीयते तुल्यवर्णास्रावैश्चिरपाकैश्च, निदानोक्तानि चास्य नोपशेरते विप- रीतानि चोपशेरत इति पित्तविसर्पः॥32॥ Ca.Ci. – 21/31,32

- Consumption of *Ushna Virya Ahara* (substances having hot potency)
- Consumption of food substances responsible for burning sensation in the epigastrium and thirst
- Excess consumption of *Amla* (sour) *Rasa* substances
- *Pitta* gets vitiated and responsible for the vitiation of *Rakta* etc leading to the manifestation of *Pitta* in the body

## Lakshana of Pittaja Visarpa

- Raised body temperature
- Thirst
- Altered state of consciousness
- Confusion
- Vomiting
- Tastelessness
- Body ache
- Excess sweating
- Burning sensation inside the body
- Irrelevant and incomprehensible speech
- Headache
- Congestion of the eyes
- Loss of sleep
- Giddiness
- Intense desire for cold air and water
- Greenish or yellowish discolouration of eyes, urine and stool
- Skin eruptions filled with greenish yellow, coppery coloured fluid or reddish coloured fluid
- Skin eruption with severe burning sensation and tearing type of pain
- Worsening of the *Lakshana* on consuming the *Nidana* of *Pittaja Visarpa* and improvement in the *Lakshana* on consuming the factors which pacify *Pitta Dosha.*

## Kaphaja Visarpa[14]

**स्वाद्वम्ललवणस्निग्धगुर्वन्नस्वप्नसंचितः।**
**कफः संदूषयन् दूष्यान् कृच्छ्रमङ्गे विसर्पति॥33॥**
**तस्य रूपाणि - शीतकः शीतज्वरो गौरवं निद्रा**
**तन्द्राऽरोचको मधुरास्यत्वमास्योपलेपो निष्ठीविका छर्दिराल**
**स्यं स्तैमित्यमग्निनाशो दौर्बल्यं च, यस्मि - श्रावकाशे**
**विसर्पोऽनुसर्पति सोऽवकाशः श्वयथु- मान् पाण्डुर्नातिरक्तः**
**स्नेह सुप्तिस्तम्भगौरवैरन्वितोऽल्पवेदनः कृच्छ्रपाकैश्चिर-कारिभिर्बहुल**
**त्वगुपलेपैः स्फोटैः श्वेतपाण्डुभिरनुबध्यते, प्रभिन्नस्तु श्वेतं पिच्छिलं**
**तन्तुमद्धनमनुबद्धं स्निग्धमास्त्रावं स्त्रवति, ऊर्ध्वं च गुरुभिः स्थिरैर्जाल**
**ावततैः स्निग्धैर्बहुल- वगुपले पैर्वर्णैरनुबध्यतेऽनुषङ्गी च भवति,**
**श्वेतन - खनयनवदनत्वङ्यूत्रवर्चस्त्वं, निदानोक्तानि चास्य नोपशेरते**
**विपरीतानि चोपशेरत इति श्लेष्म- विसर्पः॥34॥** Ca.Ci. – 21/33, 34

- Excess consumption of *Svadu* (sweet) *Rasa, Amla* (sour) *Rasa* and *Lavana* (salt) *Rasa* substances
- Excess consumption of *Snigdha* (unctuous) substances
- Excess consumption of *Guru* (heavy to digest) substances

## Lakshana of Kaphaja Visarpa

- Feeling of coldness
- Cold fever
- Heaviness of the body parts
- Excess sleep
- Drowsiness
- Tastelessness
- Sweetish taste in the mouth
- Coating over the tongue
- Spitting the sputum
- Vomiting
- Laziness
- Feeling of sensation of wet cloth covering the body
- Loss of appetite
- Weakness
- Slowly progressing swelling associated with stiffness, heaviness, slow suppuration
- When there is burst of the swelling, there will be whitish, yellowish white secretion with slimy thready, viscous and unctuous nature.
- Whitish discolouration of nails, eyes, mouth, skin, urine and stool
- Worsening of the *Lakshana* on exposure to *Kapha Dosha* etiological factors and improvement in the *Lakshana* on exposure to *Kapha* pacifying etiological factors.

## Agni Visarpa[15]

**वातपित्तं प्रकुपितमतिमात्रं स्वहेतुभिः।**
**परस्परं लब्धवलं दहद्गात्रं विसर्पति॥35॥**
**तदुपतापादातुरः सर्वशरीरमङ्गारैरिवाकीर्य- माणं मन्यते,**
**छर्द्यतीसारमूर्च्छादाह मोहज्वरतमका- रोचका-स्थिसंधिभेदतृष्णावि**
**पाकाङ्गभेदादिभिश्चा- भिभूयते, यं यं चावकाशं विसर्पोऽनुसर्पति**
**सोऽवकाशः शान्ताङ्गारप्रकाशोऽतिरक्तो वा भवति, अग्निदग्धप्रकारैश्च**

---

[14] As far as Doshaja Visarpa is concerned, we have to know about the cardinal feature of the disease i.e. fast spreading nature of the disease. In case of Vata dominant Dosha, the clinical features observed are unpredictable in terms of discolouration, in terms of colour of discharge from the lesion or in terms of nature of spread in the body, the skin lesions observed may have dry skin lesions.
- In case of Pitta dominant Visarpa, we may observe reddish discolouration of the skin lesion, associated with local rise of temperature or the presence of pus in the skin lesion etc.
- In case of Kapha dominant Visarpa, the nature of spread will be very slow, the person may have secretions which may have lymph in it or whitish discolouration in the secretion.

[15] In this condition, the person may have severe burning sensation associated with blisters. As already mentioned, this is associated with vitiation of dual Dosha, Vata and Pitta in the body. For example, when an individual is presented with herpes zoster, one of the major clinical presentation is severe burning sensation associated with blisters formation.

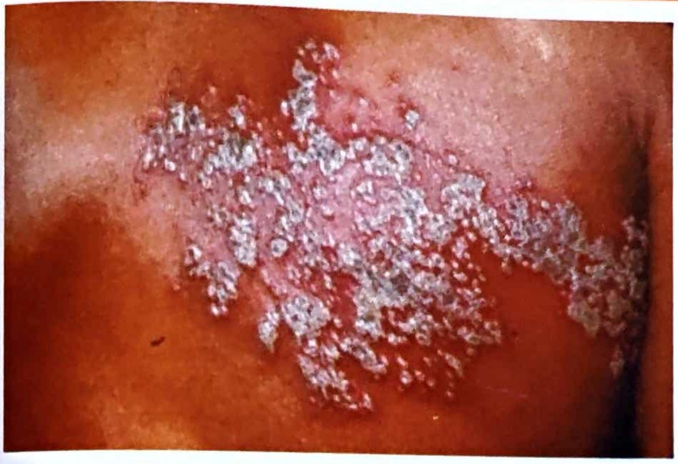


**Figure 124:** Lakshana of Agni Visarpa

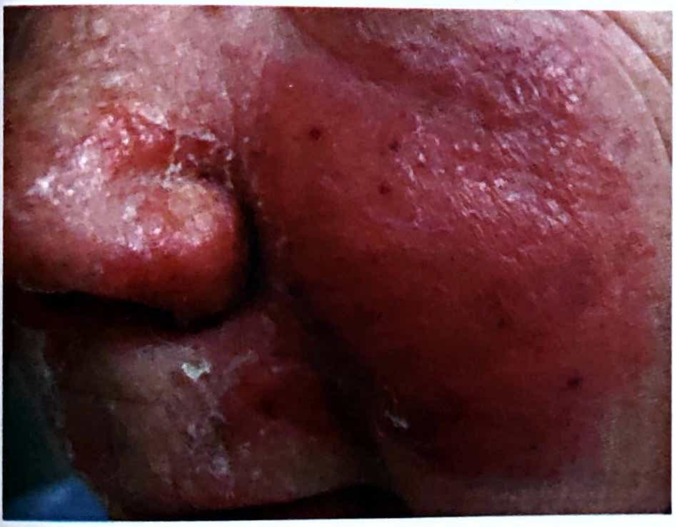


**Figure 125:** Lakshana of Agni Visarpa

स्फोटैरुपचीयते स शीघ्रगत्वा- दावेव मर्मानुसारी भवति, मर्मणि चोपतप्ते पव- र्ॄ नित्यङ्गान्यतिमात्रं प्रमोहयति संज्ञां, हिक्काश्वासौ जनयति, नाशयति निद्रां स नष्टनिद्रः प्रमूढसंज्ञो व्यथितचेता न क्वचन सुखमुपलभते, अरतिपरीतः स्थानादासनाच्छय्यां क्रान्तुमिच्छति, क्लिष्टभूयिष्ठश्चाशु निद्रां भजति, दुर्बलो दुःखप्रबो- धश्च भवति तमेवंविधमग्निविसर्पपरीतमचिकित्स्यं विद्यात्॥3 6॥

Ca.Ci. – 21/35,36

- The etiological factors which vitiate *Vata* and *Pitta Dosha* afflict the *Rakta* etc will lead to the manifestation of *Agni Visarpa*.
- The patient will have feeling of burning type of pain as if whole body is having contact with burning charcoal.
- Vomiting
- Burning sensation
- Raised body temperature
- Darkness in front of the eyes
- Tastelessness
- Tearing type of pain in bones and joints
- Thirst
- Impaired digestion
- Feeling of separation of body parts from the body
- The skin eruption will be similar to burn wounds
- Due to its fast spreading nature, it will reach *Marma* (vital point in the body) quickly
- *Rogabala* will be more than *Rogibala*, altered state of consciousness can be observed
- Breathlessness and hiccups
- Loss of sleep and mental confusion out of loss of sleep
- Restlessness
- In severe cases, the person can be aroused with difficulty due to weak physical strength, restlessness from standing to sitting and then falls in bed, being affected enormously he falls asleep instantaneously. In this state, *Agni Visarpa* is incurable.

## Kardama Visarpa[16]

कफपित्तं प्रकुपित्तं बलवत् स्वेन हेतुना।
विसर्पत्येकदेशे तु प्रक्लेदयति देहिनम्॥3 7॥

तद्विकाराः - शीतज्वरः शिरोगुरुत्वं दाहः स्तैमित्यमङ्गावसदनं निद्रा तन्द्रा मोहोऽन्नद्वेषः प्रलापोऽग्निनाशो दौर्बल्यमस्थिभेदो मूर्च्छा पिपासा स्त्रोतसां प्रलेपो जाड्यमिन्द्रियाणां प्रायोपवेशनमङ्गविक्षेपोऽङ्गमर्दोऽरतिरौत्सुक्यं चोपजायते, प्रायश्चामाशये विसर्पत्यलसक एकदेशग्राही च, यस्मिंश्चावकाशे विसर्पो विसर्पति सोऽवकाशो रक्तपीतपाण्डुपिडकावकीर्ण इव मेचकाभः कालो मलिनः स्निग्धो बहूष्मा गुरुः स्तिमितवेदनः श्वयथुमान् गम्भीरपाको निरास्त्रावः शीघ्रक्केदः स्विन्न क्लिन्नपूतिमांसत्वक् क्रमेणाल्परुक् परामृष्टोऽवदीते कर्दम इवावपीडितोऽन्तरं प्रयच्छत्युपक्लिन्नपू- तिमांसत्यागी सिरास्नायुसंदर्शी कुणपगन्धी च भवति संज्ञास्मृतिहन्ता च तं कर्दमविसर्पपरीत- मचिकित्स्यं विद्यात्॥3 8॥ Ca.Ci. – 21/37,38

- Etiological factors which vitiate *Kapha* and *Pitta Dosha* afflicting *Rakta Dhatu* etc will be responsible for the manifestation of *Kardama Visarpa*.
- Cold fever
- Heaviness of head
- Burning sensation
- Feeling of sensation of wet cloth covering the body
- Sluggish movements of body parts
- Sleep
- Drowsiness
- Confusion

---

[16] This is associated with the vitation of dual Dosha Kapha and Pitta Dosha in the body, particularly in Tvak region. The cardinal feature in this disease is foul smell in the body. This can be observed in wet gangrene or necrosis occurring in the body. Though this kind of pathological event can occur in any part of the body where cessation of blood flow is observed, the above said clinical feature is mainly seen in the lower limbs.

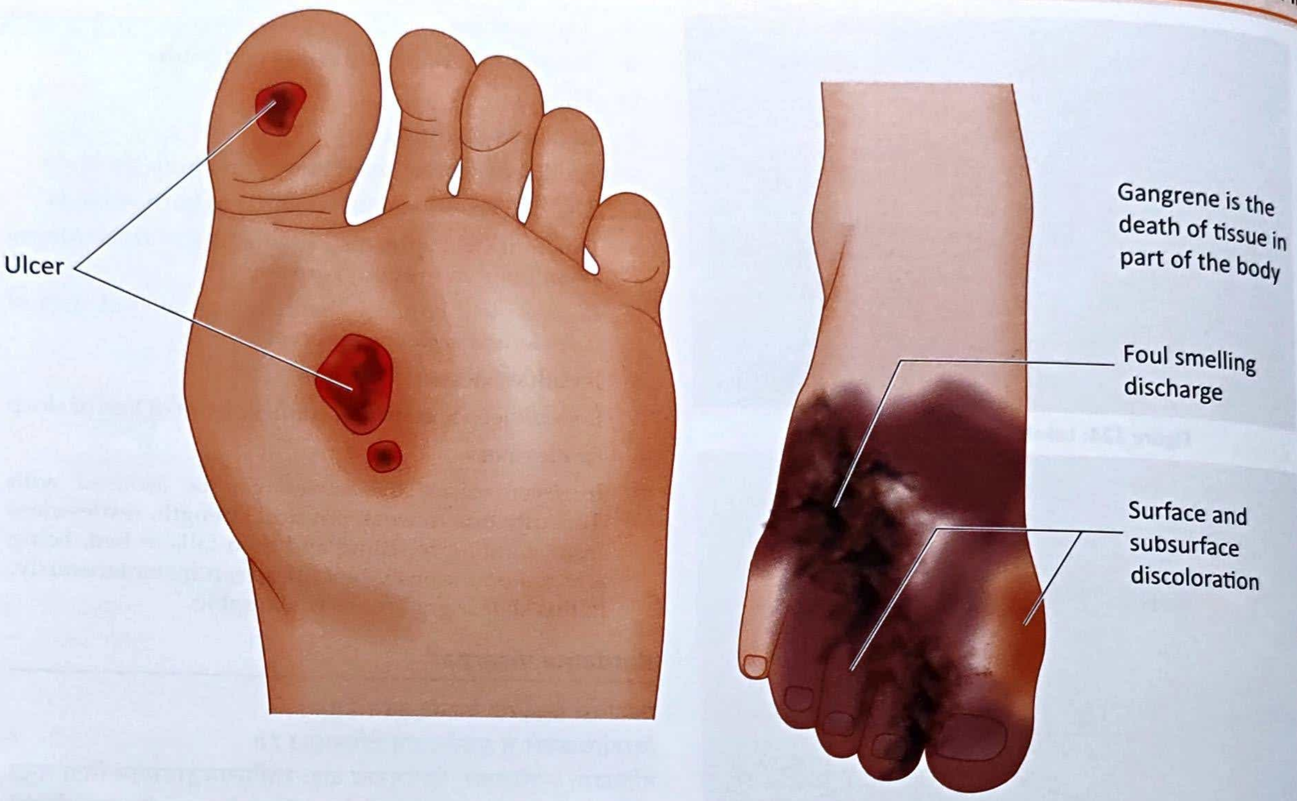

Ulcer
Gangrene is the death of tissue in part of the body
Foul smelling discharge
Surface and subsurface discoloration

**Figure 126:** Lakshana of Kardama Visarpa

- Aversion to take food
- Irrelevant and incomprehensible speech
- Loss of appetite
- Weakness
- Tearing type of pain in bones
- Altered state of consciousness
- Thirst
- Coating inside the vessels
- Poor functioning of *Indriya*
- Involuntary movements of the body parts, restlessness and anxiety occur frequently
- Spread of vitiated *Dosha* occurs to *Amashaya* with reddish, yellowish and pale papules, shining black, dirty, unctuous, too hot, heavy, with slow, but continuous pain, swelling, deep seated pus formation with no discharge, quick moistening. This is associated with less pain, when pressed, it bursts and give space on pressing, throws out decomposed and putrified flesh, we can observe blood vessels and ligaments and will have cadaveric smells.
- It may also be associated with destruction of consciousness and memory.
- This stage of *Visarpa* is incurable.

## Granthi Visarpa[17]

**स्थिरगुरुकठिनमधुरशीत स्निग्धान्नपानाभिष्य-**
**न्दिसेविनामव्यायामादिसेविनामप्रतिकर्मशीलानां श्लेष्मा वायुश्च**
**प्रकोपमापद्यते तावुभौ दुष्टप्रवृद्धी- प्रदूष्य दूष्यान् विसर्पाय कल्पेते;**
**त वायुः श्लेष्मणा विवद्धमार्गस्तमेव श्लेष्माणमनेकधा**
**भिन्दन् क्रमेण ग्रन्थिमालां कृच्छ्रपाकसाध्यां कफा- शये संजनयति,**
**उत्सन्नरक्तस्य वा प्रदूष्य रक्तं सिरास्नायुमांसत्वगाश्रितं ग्रन्थीनां मालां**
**कुरुते तीव्ररुजानां स्थूलाना मणूनां वा दीर्घवृत्तरक्तानां,**
**तदुपतापाज्वरातिसारका सहिक्काश्वा सशोषप्रमोह-**
**वैवर्ण्यरोचकाविपाकप्र से कच्छर्दिर्मूर्च्छाङ्गभङ्गनि- द्वारतिसदनाद्याः**
**प्रादुर्भवन्त्युपद्रवाः स एतैरुप- द्रुतः सर्वकर्मणां विषयमतिपतितो**
**विवर्जनीयो भवतीति ग्रन्थिविसर्पः॥39॥** Ca.Ci. – 21/39

- *Granthi Visarpa* will be manifested by the affliction of *Rakta* etc *Dhatu* by vitiated *Kapha* and *Vata Dosha*.
- Formation of multiple *Granthi* (nodular) swelling in different parts of the body which are considered to be hardly suppurating and hardly curable.
- When *Rakta* is involved, there will be formation of *Granthimala* (chain of nodular swellings). These nodular swelling are either small or large or longer or round or reddish.
- Raised body temperature

---

**GK** 17 This clinical condition is associated with multiple nodular lesions observed in different parts of the body.

- Diarrhoea
- Cough
- Hiccup
- Breathing discomfort
- Dryness of the body parts
- Altered state of consciousness
- Discolouration of the body parts affected
- Tastelessness
- Impaired digestion
- Excess salivation
- Vomiting

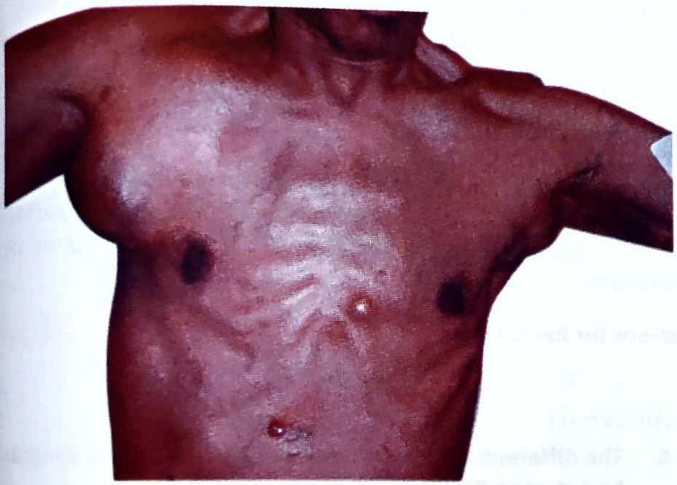


**Figure 127:** Lakshana of Granthi Visarpa

- Altered state of consciousness either semicoma or comatose state
- Body ache
- Sleep
- Restelessness
- Sluggish movements of body parts

The stage of *Granthi Visarpa* is incurable.

## Sannipataja Visarpa

**सर्वायतनसमुत्थं सर्वलिङ्गव्यापिनं सर्वधात्वनुसारिणमाशुकारिणं महात्ययिकमिति सन्निपातविसर्पमचिकित्स्यं विद्यात्॥41॥**

Ca.Ci. – 21/41

- *Sannipataja Visarpa* is manifested due to the vitiation of all three *Dosha.*
- This type of *Visarpa* is presented with the *Lakshana* mentioned in all *Doshaja* varieties of *Visarpa.*
- This type of *Visarpa* involves all *Dhatu* of the human body.
- This is *Ashukari* (producing rapid progression of the disease)
- This is treated as medical emergency. If the treatment is being given, the recovery from the illness is very remote.

## Kshataja Visarpa

**सद्यःक्षतव्रणमुपेत्य नरस्य पित्तं रक्तं च दोषबहुलस्य करोति शोफम्॥**
**स्फोटैः कुलत्थसदृशैरसितैश्च कीर्णम्॥7॥**
**श्यावं सलोहितमतिज्वरदाहपाकं**

Su.Ni. – 10/7

- Wound caused by fresh injury
- Vitiation of *Pitta* and *Rakta* leading to the swelling
- Blackish or reddish discolouration of the swelling
- Raised body temperature
- Burning sensation
- Pus formation or suppuration
- Small blisters resemble the shape of horse gram

## Sadhyasadhyata of Visarpa

**बहिःश्रितः श्रितम्श्चान्तस्तथा चोभयसंश्रितः।**
**विसर्पों बलमेतेषां ज्ञेयं गुरु यथोत्तरम्॥23॥**
**बहिर्मार्गाश्रितं साध्यमसाध्यमुभयाभितम्।**
**विसर्प दारुणं विद्यात् सुकृच्छ्रे त्वन्तराश्रयम्॥24॥**
**अन्तः प्रकुपिता दोषा विसर्पम्त्यन्तराश्नये।**
**बहिर्बहिः प्रकुपिताः सर्वत्रोभयसंश्रिताः॥25॥**
**मममर्मोपघातात् संमोहादयनानां विघट्टनात्।**
**तृष्णातियोगाद्वेगानां विषमाणां प्रवर्तनात्॥26॥**
**विद्याद्विसर्पमन्तर्जमाशु चाग्निवलक्षयात्।**
**अतो विपर्ययाद्वाह्यमन्यैर्विद्यात् स्वलक्षणैः॥27॥**
**सिध्यन्ति वातकफपित्तकृता विसर्पाः सर्वात्मकः क्षतकृतश्च न सिद्धिमेति॥**
**पैत्तानिलावपि च दर्शितपूर्वलिङ्गौ सर्वे च मर्मसु भवन्ति हि कृच्छ्रसाध्याः॥8॥**

Su. Ni. – 10/8

- If the person is diagnosed to be suffering from *Visarpa* manifests due to single *Dosha* vitiation either *Vataja* or *Pittaja* or *Kaphaja*[18] is *Sadhya* (easily curable)
- *Pitta* and *Vataja Visarpa* and if *Visarpa* involves *Marma* (vital parts) is *Krichrasadhya*[19] (difficult to cure)
- If the *Visarpa* is said to manifest from the vitiation of all three *Dosha* or is manifested in an individual due to trauma is *Asadhya*[20] (incurable)

---

[18] Ekadoshaja type of Visarpa is usually curable because treatment is concentrating on single Dosha only

[19] Marma is considered as vital point. If an injury occurs to this, this may lead to wide range of consequences ranging from pain to death. Hence, affliction of Visarpa in these regions may require meticulous treatment.

[20] When all three Dosha afflicted in Visarpa, it is very difficult to cure as methodical line of treatment as per Visarpa is very difficult.

## Key summary of the chapter

- विविधं सर्पति यतो विसर्पस्तेन स स्मृतः। परिसर्पोऽयचा नाना सर्पतः परिसर्पणात्॥1 1 ॥ Ca.Ci. – 21/11, Visarpa is the spectrum of the diseases which is associated with cardinal feature of skin lesions which spreads rapidly in the body.

  This is having the involvement of Saptaka Dravya Sangraha i.e. Tridosha, Tvak, Rakta, Mamsa and Lasika.

  It should be remembered that Kushtha, (skin diseases) will also have the affliction of Saptaka Dravya Sangraha. In case of Visarpa, Rakta Dhatu will be mainly afflicted during the pathologic events in the body, wherein Kushtha is mainly considered to be Tridosha dominant disease and it is slowly progressing disease when compared to Visarpa.
- **7 types of Visarpa are mentioned:** 3 single Dosha dominant, 3 dual Dosha dominant –
  - Vata and Pitta dominant (Agni Visarpa);
  - Pitta and Kapha dominant (Kardama Visarpa) and
  - Vata and Kapha dominant (Granthi Visarpa) and 1 Sannipataja Visarpa where all three Dosha affliction is seen.
- As far as Sadhyasadhyata of Visarpa is concerned, if the Visarpa is present in Bahya Rogamarga, then such a type of Visarpa is considered as Sadhya (curable), if the Visarpa is present in Abhyantara Rogamarga, then such type of Visarpa is Krichrasadhya and Visarpa present in both Bahya and Abhyantara Rogamarga, then such a type of Visarpa is Asadhya (incurable).
- If the person is diagnosed to be suffering from Visarpa manifests due to single Dosha vitiation either Vataja or Pittaja or Kaphaja is Sadhya (easily curable); Pitta and Vataja Visarpa and if Visarpa involves Marma (vital parts) is Krichrasadhya (difficult to cure); if the Visarpa is said to manifest from the vitiation of all three Dosha or is manifested in an individual due to trauma is Asadhya (incurable).

## Self-Assessment: Questions for Reviews

### Long essay questions

- Define Visarpa, explain Nidana, Samprapti, Samprapti Ghataka, Bheda, Sadhyasadhyata of Visarpa in detail

### Short essay questions

- Explain Pratyatma Lakshana of Visarpa
- Describe Granthi Visarpa
- Explain Kardama Visarpa
- Explain the differences between Kushtha and Visarpa

### MCQs:

1. **Vata and Pitta dominance is observed in which of the following type of Visarpa?**
   a. Agni Visarpa;
   b. Granthi Visarpa;
   c. Kardama Visarpa;
   d. Sannipataja Visarpa

*Answer*: (a)

2. **Granthi Visarpa is having the dominance of**
   a. Vata and Pitta;
   b. Vata and Kapha;
   c. Pitta and Kapha;
   d. Vata

*Answer*: (b)

3. **Sankhya Samprapti of Visarpa as per Charaka is**
   a. 3; b. 6;
   c. 7; d. 9

*Answer*: (c)

4. **The differentiating factor among Saptaka Dravya Sangraha between Kushtha and Visarpa is**
   a. Tvak; b. Rakta;
   c. Mamsa; d. Kapha

*Answer*: (b)

5. **Visarpa can occur in which of the following?**
   a. Only in Bahya Rogamarga;
   b. Only in Abhyantara Rogamarga;
   c. Only in Bahya and Abhyantara Rogamarga;
   d. Any of the above

*Answer*: (d)

## Chapter resources

- https://pharmaceutical-journal.com/article/ld/cellulitis-recognition-and-management
- Charaka Samhita Chikitsa Sthana 21st chapter – Visarpa Chikitsa Adhyaya
- Charaka Samhita Sutra Sthana 18th chapter – Trishothiya Adhyaya
- Sushruta Samhita Sutra Sthana 17th chapter – Amapakvaishaniya Adhyaya
- Sushurta Samhita Nidana Sthana 10th chapter – Visarpa Nadi Stanaroga Nidana Adhyaya
- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee brothers, New Delhi, 2005
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar,

25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017

- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.wikipedia.org
- https://emedicine.medscape.com/article/1132465-overview?form=fpf
- https://www.verywellhealth.com/erysipelas-st-anthonys-fire-1068816
- https://www.hopehospital.com/gangrene-types-symptoms-prevention-wet-dry-dangerous-diabetes-blood-circulation/
- https://www.clinicaladvisor.com/slideshow/clinical-quiz/derm-dx-multiple-spreading-skin-lesions-in-a-vietnam-war-veteran/

***

CHAPTER

33

Varicose veins
Skin appears thin, and tissue-like, with dark patches, and red spots

# Skin Diseases

## Learning Objectives

- ⇨ To have brief introduction about skin disease
- ⇨ To describe clinical features of allergic disorders – eczema, urticaria
- ⇨ To describe the clinical features of squamous lesions – psoriasis, lichen planus
- ⇨ To know bullous lesions – pemphigus, pemphigoid, mycotic skin diseases
- ⇨ To know about leprosy, vitiligo and cellulitis
- ⇨ To do the necessary physical examinations to be performed in above mentioned diseases
- ⇨ To perform the necessary laboratory investigations in above mentioned diseases and their interpretations

## Introduction

History and physical examination are adequate for diagnosing many of the skin lesions. Some require biopsy or other testing. Important information from the history includes

- Personal or family history of atopy (suggesting atopic dermatitis)
- Occupational exposures (contact dermatitis)
- Long term exposure to sunlight or other forms of radiation (benign and malignant skin tumours)
- Systemic diseases (diabetes and candida infection or tinea infection)
- Sexual history (syphilis and gonorrhoea)
- Use of drugs (Steven Johnson syndrome, toxic epidermal necrolysis)
- As far as physical examination of the patient is concerned, the main focus is on determining primary and secondary lesions.
- In the examination of the skin, the patient should be assessed prior to the detailed clinical history. The observed clinical findings should be integrated to the relevant historical information.
- Skin examination is one of the easiest examination to be performed and can be performed without the need for complex investigations, although a biopsy may be needed to confirm the diagnosis.
- An ideal skin examination includes evaluation of skin, hair, nails and mucosal surfaces of mouth, eyes, nose, nasopharynx and anogenital region. During the initial examination of the patient, it is important that the patient is disrobed as completely as possible. This will minimise the chance of missing the important individual skin lesion. The patient should be first viewed from a distance of 1.5-2 m (4-6 feet) so that general character of the skin and distribution of the lesions can be evaluated.
- If the person is presented with skin lesion localised to one particular part of the body, usually the cause of the skin lesion is usually exogenous and if the person is presented with generalised skin lesions usually the cause of the skin lesion is endogenous. If the person is having linear skin lesion, usually the cause of the lesion is either surgical or use of sharp instrument like knife can be predicted. If the person is having the skin lesion with irregular surface, probable cause of the lesion could be exogenous such as road traffic accident or sports injury.
- **Four basic features of skin lesion** must be noted and considered during the physical examination.

1. **Distribution of the eruption –** Which part of the body is afflicted? Among the integumentary system, whether nail or hairs or skin or mucosa afflicted? These informations should be analysed.
2. **Types of primary and secondary lesions –** One should

have the thorough knowledge of primary and secondary lesions and their distribution in the body should be properly analysed. Each dermatological illness is usually having typical primary and secondary lesions in specific location of the body.

3. **Shape of individual lesions –** It should be analysed so that diagnosis of the dermatological illness can be accurately made. For example, the presence of wheal in the body suggests the allergic dermatitis.
4. **Arrangement of the lesions –** Arrangement of the lesion in the different parts of the body will also aid in the diagnosis of the disease.

## Eczema

The term eczema is often used to denote dermatitis (inflammation of dermis). This is superficial inflammation of the skin characterized by redness, oedema, oozing, crusting, scaling and sometimes formation of vesicles. This can occur in several forms: atopic dermatitis, contact dermatitis, exfoliative dermatitis, hand and foot dermatitis, stasis dermatitis, seborrheic dermatitis. In the following pages, we are going to learn in brief about above said diseases.

### Atopic dermatitis

This is an immune mediated inflammation of the skin arising from an interaction between genetic and environmental factors. Pruritus (itching) is the primary symptom, skin lesions range from mild erythema (redness) to severe lichenification. Diagnosis is done by history and physical examination.

- This disease is linked to proallergic/ proinflammatory T cell immune responses. These responses are attributable to cleaner indoor environments, trend toward smaller families, early use of vaccinations and antibiotics deprive children of early exposure to infections and allergens that otherwise suppress proallergic T cells and thereby induce tolerance to various antigens.
- It can be either IgE mediated (70-80%) of the cases; intrinsic (20-30%) of the cases. Extrinsic variety occurs due to different triggers such as foods (milk, eggs, soy, wheat, peanuts, fish); airborne allergens (dust mites, molds); staphylococcus aureus colonization on skin due to deficiencies in endogenous antimicrobial peptides); topical products (cosmetics). Intrinsic variety is having idiopathic cause as far as manifestation of atopic dermatitis is concerned.
- In the acute phase, which last for 1 to 2 months, red, weeping, crusted lesions appear on the face and spread to the neck, scalp, extremities and abdomen. In the chronic phase, scratching and rubbing create skin lesions (typically erythematous macules and papules that lichenify with continuous scratching). Lesions typically appear in antecubital and popliteal fossae and on the eyelids, neck and wrists and may occasionally become generalized. Lesions slowly resolve to dry scaly macules (xerosis) that can fissure and facilitate exposure to irritants and allergens. In older children and adults, intense itching is the common feature.

### Contact dermatitis

This is acute inflammation of the skin caused by irritants or allergens. Many substances can cause this reaction such as cosmetics, fragrances, jewelry, plants and detergents etc. The primary symptom is pruritus. Skin changes range from erythema to blistering and ulceration, often on or near the hands but occurring on any exposed skin surface. Diagnosis is by exposure history, examination and sometimes skin patch testing.

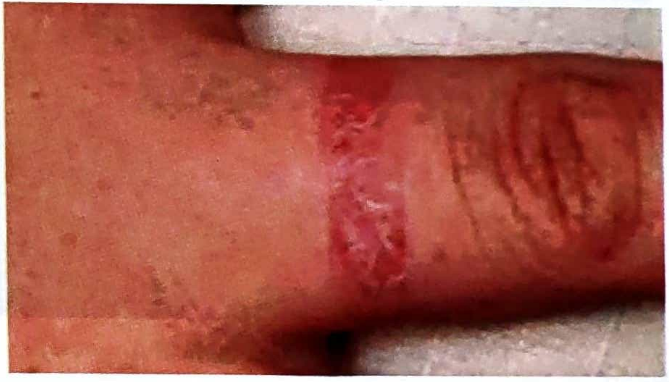


**Figure 128:** Atopic dermatitis

### Exfoliative dermatitis

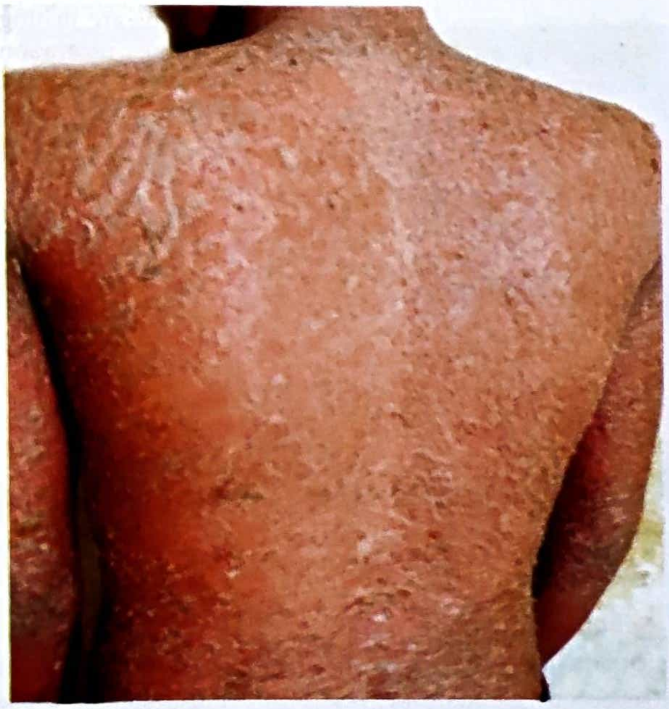


**Figure 129:** Exfoliative dermatitis

This is widespread erythema and scaling of the skin caused by preexisting skin disorders, drugs, cancer or unknown causes. Symptoms and signs are pruritus, diffuse erythema and epidermal sloughing. Diagnosis is clinical.

## Hand and foot dermatitis

Hand and foot dermatitis is not a single disorder. Rather, it is a categorization of dermatitis that affects the hands and feet selectively due to one of several causes. Patients often present with isolated dermatitis of the hands or feet. Causes include contact dermatitis, fungal infection, psoriasis, scabies. Other causes include systemic viral infection in children (hand-foot-mouth disease). Some causes are idiopathic. Diagnosis is inferred from location and appearance of the skin lesions.

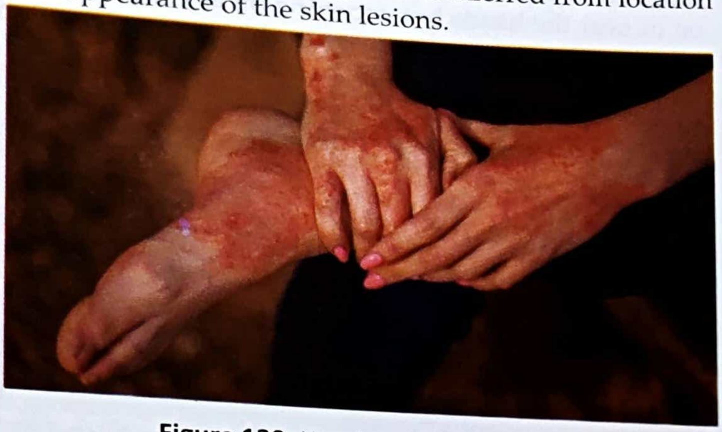


**Figure 130:** Hand and foot dermatitis

## Stasis dermatitis

This is inflammation of the skin of the lower limbs caused by chronic venous insufficiency. Symptoms are itching, scaling, hyperpigmentation, and sometimes ulceration. Diagnosis is clinical.

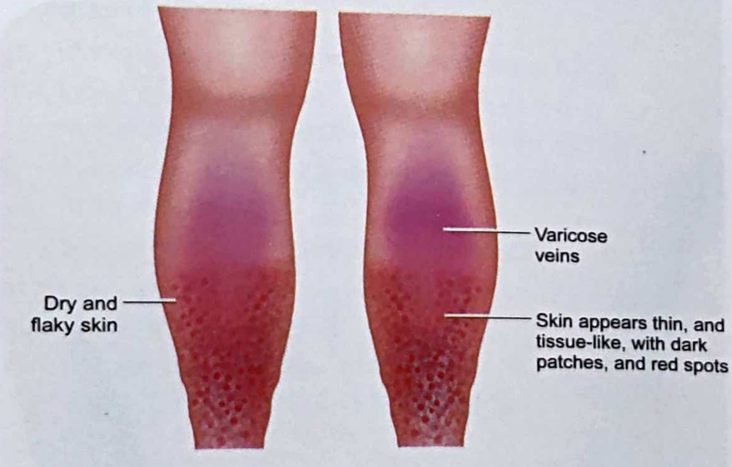

Varicose veins
Dry and flaky skin
Skin appears thin, and tissue-like, with dark patches, and red spots

**Figure 131:** Stasis dermatitis

## Seborrheic dermatitis

This is inflammation of skin that has a high density of sebaceous glands (face, scalp, upper trunk). The cause is unknown, but Pityrosporum ovale, a normal skin organism play some role. This is occurring in patients with HIV and in those with certain neurological disorders. The patient will have occasional pruritus, dandruff, and yellow, greasy scaling along the hairline and on the face. Diagnosis is made by examination.

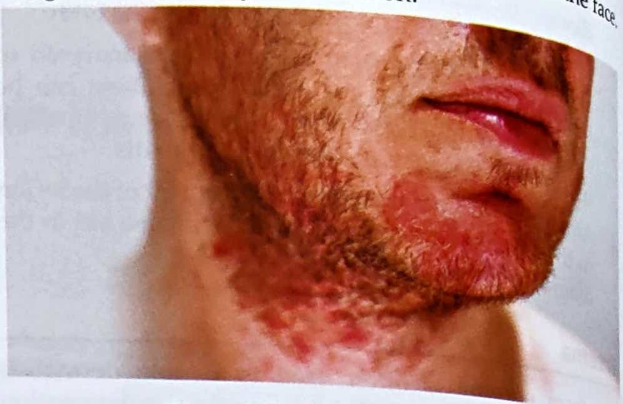


**Figure 132:** Seborrheic dermatitis

## Urticaria

Urticaria is migratory, well-circumscribed, erythematous, pruritic plaques on the skin. This may also be accompanied by angioedema which results from mast cell and basophil activation in the deeper dermis and subcutaneous tissues and manifests as oedema of the face and lips, extremities or genitals. Angioedema can be life threatening if airway obstruction occurs because of laryngeal oedema or tongue swelling.

- Urticaria results from release of histamine, bradykinin, kallikrein, and other vasoactive substances from mast cells and basophils in the superficial dermis, resulting in intradermal oedema caused by capillary and venous vasodilatation and occasionally caused by leukocyte infiltration.
- Caused by hypersensitivity reactions, autoimmune causes.
- The main clinical symptom is itching associated with redness which leads to the occurrence of wheals which will get subsided after due course of time.
- History of present illness should include a detailed account of the individual episodes of urticaria, including distribution, size and appearance of lesions; frequency of occurrence; duration of individual lesions; and any prior episodes. Activities and exposures during, immediately before and within the past 24 hours of the appearance of urticaria should be noted. Clinicians specifically should ask about recent exercise, exposure to potential allergens, insects, or animals or new foods; new laundry detergent or soap; recent infections. Important associated symptoms include rhinorrhoea, swelling of the face and tongue and dyspnoea.
- Review of systems: should seek symptoms of causative disorders, including fever, fatigue, abdominal pain, and diarrhoea (infection); heat or cold intolerance,

tremor or weight change (autoimmune thyroiditis); joint pain (SLE); malar flush (SLE); dry eyes and dry mouth (Sjogren's syndrome); cutaneous ulcers and hyperpigmented patches after resolution of rashes (urticarial vasculitis).

- Past medical history includes a detailed allergy history (allergies, asthma, eczema); and possible known possible causes (autoimmune disorders and cancer). Family history should elicit any history of rheumatoid disease, autoimmune disorders or cancer.
- Social history should cover any recent travel, and any risk factors for transmission of infectious disease (e.g. hepatitis and HIV).
- **Physical examination:** Vital signs should note the presence of bradycardia or tachycardia and tachypnoea. General examination should immediately seek any signs of respiratory distress.
- Examination of the head should note any swelling of the face, lips or tongue; scleral icterus; malar rash or dry eyes and dry mouth. The oropharynx should be inspected and the sinuses should be palpated for detecting occult infection.
- Abdominal examination should note any masses, hepatomegaly, splenomegaly or tenderness. Neurological examination should note the presence of tremor or hyperreflexia or hyporeflexia. Musculo skeletal examination should note the presence of inflamed or deformed joints. Skin examination should note the presence and distribution of urticarial lesions as well as cutaneous ulceration.
- Dermatographism **(see Figure 133)** is the sign which confirms the diagnosis of urticaria.

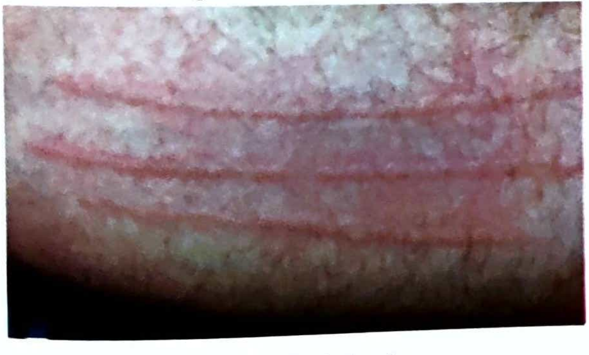


**Figure 133:** Urticaria

- Angioedema **(see Figure 134)** (swelling of the face, lips or tongue); stridor (inspiratory crowing type of sound) or other respiratory distress; hyperpigmented lesions, ulcers or urticaria that are present for > 48 hours; signs of systemic illness such as fever, jaundice, cachexia or lymphadenopathy may imply the severity of the disease.
- The patient has to be managed at the earliest.

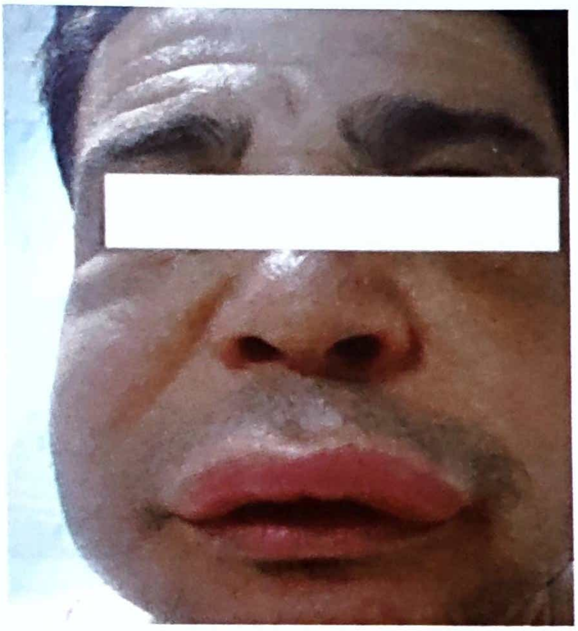


**Figure 134:** Angioedema

## Psoriasis

Psoriasis is an inflammatory disease that manifests most commonly as well-circumscribed, erythematous papules and plaques covered with silvery scales. Cause is unclear but seems to involve immune system.

Common triggers include trauma, infection and certain drugs. Symptoms are usually minimal with occasional mild itching, but cosmetic implications may be major. Some people develop severe disease with arthritis. Diagnosis is by appearance and distribution of the lesions.

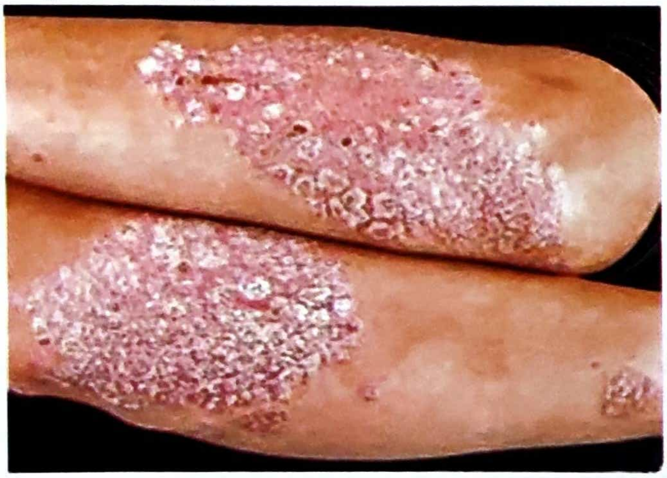


**Figure 135:** Psoriasis

- Psoriasis is hyperproliferation of epidermal keratinocytes combined with inflammation of the epidermis and dermis. It affects about 1 to 5% of the population worldwide; peak onset is seen at ages between 16 to 22 and 57 to 60 years, but the disorder can occur at any age.

- Cause is unclear. Some of the triggers such as injury (Koebner's phenomenon), sunburn, HIV, emotional stress, alcohol consumption, β haemolytic streptococcal infection, drugs are considered to worsen the clinical condition.
- Lesions are asymptomatic or pruritic and are often localized on the scalp, extensor surfaces of the elbows, knees, sacrum, buttocks, penis. The nails, eyebrows, axillae, umbilicus and perianal region may also be affected. The disease can be widespread, involving confluent areas of the skin extending between these regions. Lesions differ in appearance depending on type.
- Lesions are discrete, erythematous papules or plaques covered with thick, silvery, shiny scales. Lesions appear gradually and remit and recur either spontaneously or with appearance and resolution of the triggers.
- Arthritis develops in 5 to 30% of the cases and can be disabling; joint destruction may ultimately occur.
- Psoriasis is rarely life threatening disease, but can affect a patient's self image.
- Diagnosis is by clinical evaluation and rarely biopsy is performed to make the diagnosis. Differential diagnosis includes seborrheic dermatitis, dermatophytosis, cutaneous lupus erythematosus, eczema, lichen planus, and secondary syphilis.

## Lichen Planus

Lichen planus (LP) is a recurrent, pruritic, inflammatory eruption characterized by small, discrete, polygonal, flat-topped, violaceous papules that may coalesce into rough scaly patches, often accompanied by oral lesions. Diagnosis is usually clinical and supported by skin biopsy.

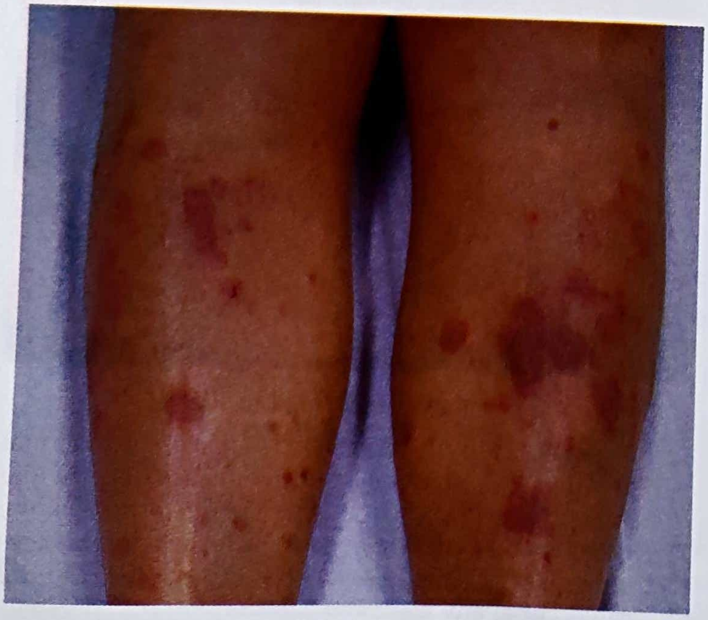


Figure 136: Lichen planus

- LP is thought to be caused by T cell mediated response against basal epithelial keratinocytes in people with genetic predisposition.
- Typically lesions are pruritic, purple, polygonal, flat-topped papules and plaques. Lesions initially are 2 to 4 mm in diameter, with angular borders, a violaceous colour and a distinct sheen in cross lighting. They are usually symmetrically distributed, moist commonly on flexural surfaces of the wrists, legs, trunk, glans penis and oral and vaginal mucosae., but can be widespread. The face is rarely involved. Onset may be abrupt or gradual.
- During acute phase, new papules may appear as sites of minor skin injury (Koebner phenomenon), such as superficial scratch. Lesions may coalesce or change over time, becoming hyperpigmented, atrophic, hyperkeratotic or vesiculobullous. Although pruritic, lesions are rarely excoriated or crusted. If the scalp is affected, patchy scarring alopecia may occur.
- The oral mucosa is involved in 50% of the patients; oral lesions may occur without cutaneous lesions and usually persist for life. Reticulated, lacy, bluish white, linear lesions (Wichham's striae) are a hallmark of oral LP, especially on oral mucosae. Tongue margins and gingival mucosae in edentulous areas may also be affected. Chronic exacerbations and remissions are common.
- Vulvar and vaginal mucosae are often involved in upto 50% of the women. In men, genital involvement is common, especially in glans penis.
- Nails are involved in 10% of the patients. Findings vary in intensity with nail bed discolouration, longitudinal ridging and lateral thinning, and complete loss of nail matrix and nail, with scarring of the proximal nail fold onto nail bed.
- Diagnosis is by clinical evaluation and skin biopsy.
- **Prognosis:** Many cases resolve without intervention, presumably because the inciting agent is no longer present. Recurrence after years may be due to reexposure to the trigger or some change in the triggering mechanism. Sometimes, treatment of a previously occult infection, such as a dental abscess, result in resolution. Vulvovaginal LP may be chronic and refractory to therapy, causing decreased quality of life.

## Pemphigus

Pemphigus vulgaris is an uncommon, potentially fatal, autoimmune disease characterized by intraepidermal blisters and extensive erosions on an apparently healthy skin and mucous membranes. Pemphigus folicaceous is a generally benign blistering disorder characterized by splitting high in epidermis, causing erosions to form on the skin. These are categorized under bullous diseases. In this section, we are going to discuss pemphigus vulgaris as this is most fatal, commonly observed in Ayurveda hospitals among the blistering diseases.

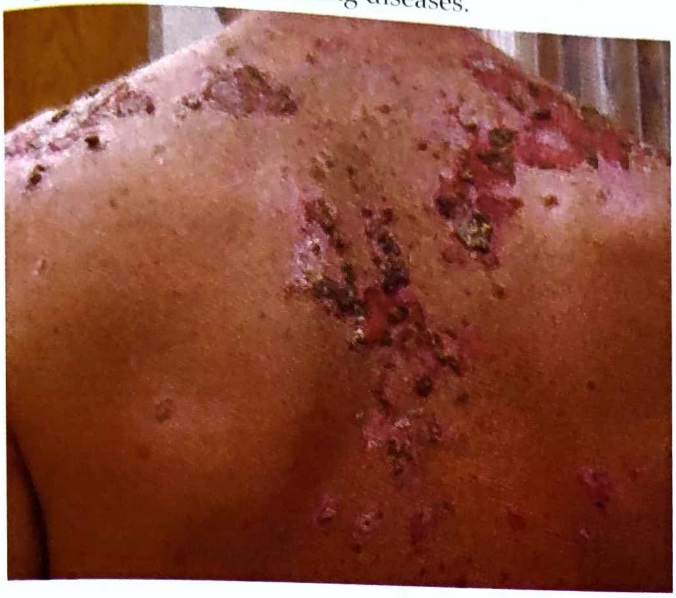


**Figure 137:** Pemphigus

- Pemphigus vulgaris (PV) occurs in middle aged or elderly parents and is rare in children. It is characterized by the presence of autoantibodies directed against intercellular adhesions molecules. These autoantibodies are present both in skin and serum.
- The primary lesions are flaccid bullae of various sizes, but often skin or mucosa just shears off, leaving painful erosions. Lesions typically occur first in the mouth, where they rupture and remain as chronic, often painful, erosions for variable periods before the skin is affected; dysphagia and poor oral intake are common.
- Lesions also appear on the upper oesophagus.
- Cutaneous bullae typically arise from normal appearing skin, rupture and leave raw area and crusting. Itching is usually absent. Open skin lesions often become infected. If large portions of the body are affected, fluid and electrolyte loss may be significant. Nikolsky's sign is positive in the patients of pemphigus vulgaris (PV).
- Diagnosis is by clinical evaluation; biopsy with direct immunofluorescence testing.
- As far as prognosis is concerned, before systemic corticosteroids were used, pemphigus vulgaris was usually fatal, most patients died within 5 years of onset. Even with treatment, PV is a serious disorder with an inconsistent and unpredictable response to the treatment., a prolonged course, and virtually inevitable adverse drug effects.

## Pemphigoid

Bullae, are elevated, fluid filled blisters ≥ 5 mm in diameter. Bullous pemphigoid is an autoimmune, skin disorder causing chronic, pruritic, bullous eruptions in elderly patients. Diagnosis is done by skin biopsy.

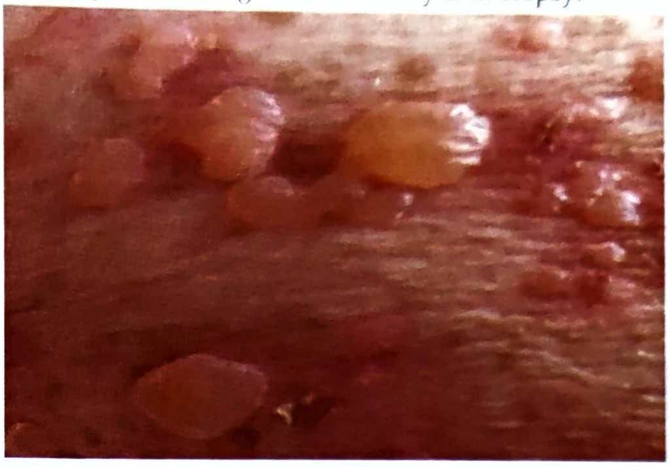


**Figure 138:** Bullous pemphigoid

- In bullous pemphigoid (BP), antibodies are directed against the base membrane zone of the epidermis, causing separation between the epidermis and dermis. Bullous pemphigoid must be differentiated from pemphigus vulgaris.
- Characteristic tense bullae develop on normal appearing or erythematous skin, most often in flexural areas. Nikolsky's sign, in which lateral pressure on skin adjacent to a blister causes epidermal detachment is negative.
- BP can manifest initially as hives with annular, dusky red, oedematous lesions with or without peripheral vesicles. Itching is common, usually without other symptoms. Oral lesions occur in about one third of patients but heal rapidly.
- Diagnosis is by biopsy and antibody titers.
- Prognosis is good, and the disorder usually subsides within months to years; however the disease is fatal, especially in the elderly and debilitated patients, with death being caused by infection and sepsis or the effects of the drugs.

## Mycotic Skin Diseases

The term mycosis or fungal infections refers to the diseases caused by fungi (yeast or mold). Dermatophytosis is the term used for fungal infections of the keratin in the skin and nails. Symptoms and signs may vary by the site of the infection. Diagnosis is done by clinical appearance and by examination of skin scraping on potassium hydroxide wet mount.

- Dermatophytes are molds that require keratin for nutrition and must live on stratum corneum, hairs on nails to survive. Human infections are caused by Epidermophyton, Microsporum and Trichophyton spp. These infections are different from candidiasis in that they are rarely if ever invasive. Transimission is person to person, animal to person, and rarely soil to person.

- Symptoms and signs vary by site (skin, hair, nails). Organism virulence and host susceptibility and hypersensitivity determine severity. Most often, there is little or no inflammation; asymptomatic or mildly itching lesions with a scaling, slightly raised border remit and recur intermittently.
- Occasionally, inflammation is more severe and manifests as sudden vesicular or bullous disease (usually of the foot) or as an inflamed boggy lesion of the scalp (kerion).
- Diagnosis is done by clinical appearance and potassium hydroxide wet mount. Differential diagnosis includes folliculitis decalvans, bacterial pyodermas and entities causing scarring alopecia.
- Several terms are used for mycotic skin infections depending upon the location.
- Tinea barbae (infection of the beard); tinea capitis (infection of the scalp); tinea corporis (infection of the face, trunk and extremities); tinea cruris (infection of the groin); tinea pedis (infection of the feet). All these infections are caused by dermatophytes.

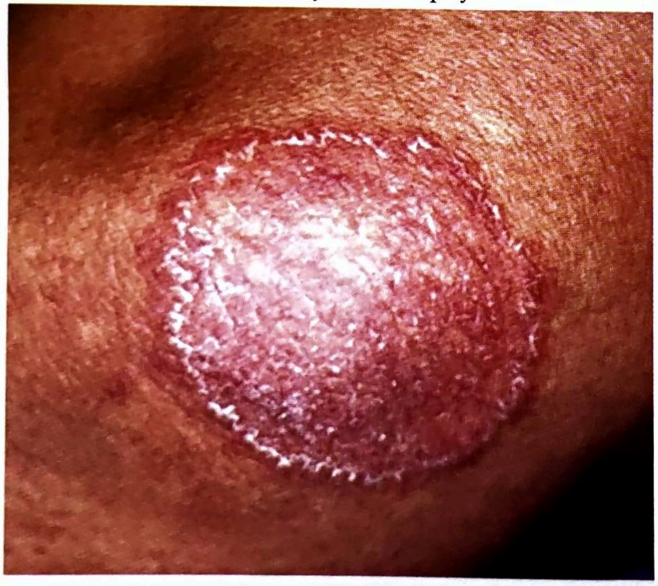


**Figure 139:** Myctic skin disease

- Tinea versicolor (pityriasis versicolor) is skin infection caused by Malassezia furfur that manifests as multiple asymptomatic scaly patches varying in colour from white to brown. Diagnosis is based on clinical appearance and skin scrapings.
- Classically, it causes the appearance of multiple tan, brown, salmon, or white scaling lesions on the trunk, neck, abdomen and occasionally face. The lesions coalesce in some of the occasions.
- Diagnosis is clinical appearance and by potassium hydroxide wet mount.

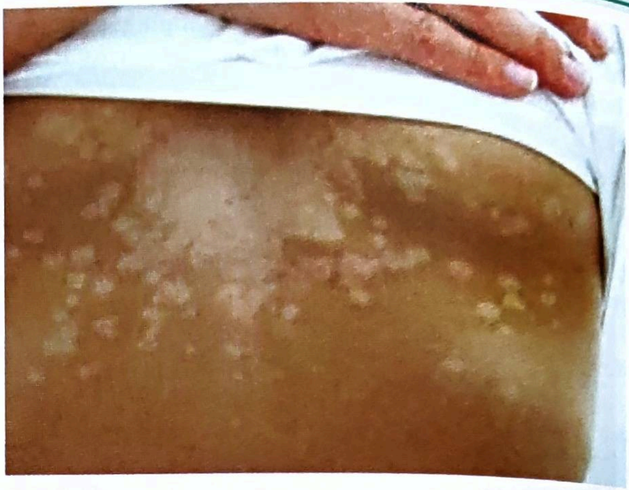


**Figure 140:** Tinea versicolor

## Leprosy

Leprosy is a chronic infection caused by the acid fast bacillus Mycobacterium leprae, which has a unique tropism for peripheral nerves, skin and mucous membranes. Symptoms are myriad and include anaesthetic, polymorphic skin lesions and peripheral neuropathy. Diagnosis is done by clinical evaluation and confirmed by biopsy.

- Leprosy can develop at any age but appears most often in people aged 5 to 15 years or after 30 years.
- Humans are the main natural reservoir for M. leprae. The mechanism of spreading of leprosy is unclear. It is thought to be passed from person to person through nasal droplets and secretions. Casual contact (e.g. simply touching someone with the disease) and short term contact may not seem to spread the disease.
- M. leprae grow slowly (doubling in 2 weeks), the usual incubation period ranges from 6 months to 10 years. Once infection develops, haematogenous dissemination can occur.

### Classification

- Leprosy can be categorized by type and number of lesions observed in the skin.
  - **Paucibacillary:** ≤ 5 skin lesions with no bacteria detected on samples from the affected areas
  - **Multibacillary:** ≥ 6 skin lesions, bacteria detected on samples from the skin lesions or both
- Leprosy can also be classified by cellular response and clinical findings.
  - Tuberculoid
  - Lepromatous
  - Borderline
- People with tuberculoid leprosy typically have strong cell mediated response, which limits the

disease to few skin lesions (paucibacillary). People with lepromatous or borderline leprosy typically have poor cell mediated immunity and have more severe, systemic infection with widespread bacterial infiltration of skin, nerves and other organs (nose, testes, kidneys). They have more skin lesions (multibacillary) and the disease is more contagious.

- Symptoms usually do not begin until > 1 year after infection (average 5 to 7 years). Once the symptoms begin, they progress slowly. Leprosy mainly affects the skin and peripheral nerves. Nerve involvement causes numbness and weakness in areas controlled by the affected nerves.
  - **Tuberculoid leprosy:** Skin lesions consist of one or few hypoesthetic, centrally hypopigmented macules with sharp, raised borders. The rash , as in all forms of leprosy, is non pruritic. Areas affected by this rash are numb because of damage to the underlying nerves, which may be palpably enlarge.

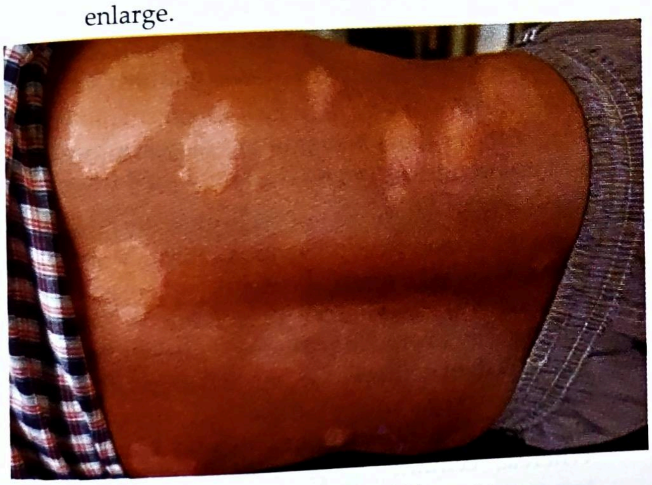


**Figure 141:** Tuberculoid leprosy

  - **Lepromatous leprosy:** Much of the skin and many areas of the body, including the kidneys, nose and testes, may be affected. Patients have macules, papules, nodules and plaques, often symmetric. Peripheral neuropathy is more severe than in tuberculoid leprosy, with more areas of numbness.
  - **Borderline leprosy:** Features of both tuberculoid and lepromatous leprosy are present. Without treatment, borderline leprosy may be less severe and more like tuberculoid form, or it may worsen and become more like the lepromatous form.

## Complications

- The most severe complications result from the peripheral neuropathy, which causes deterioration of the sense of touch and a corresponding inability to feel pain and temperature. Patients may unknowingly burn, cut or otherwise harm themselves. Repeated damage may lead to loss of digits. Muscle weakness can result in deformities (e.g. clawing of 4th and 5th fingers caused by ulnar involvement, foot drop caused by peroneal nerve involvement). Papules and nodules can be particularly lead to disfiguration of the face.
- Some other complications observed in the patients of leprosy are plantar ulcers, erosion and collapse of nasal septum, erectile dysfunction, amyloidosis and renal failure.
- Diagnosis is done by microscopic examination of skin biopsy specimen.

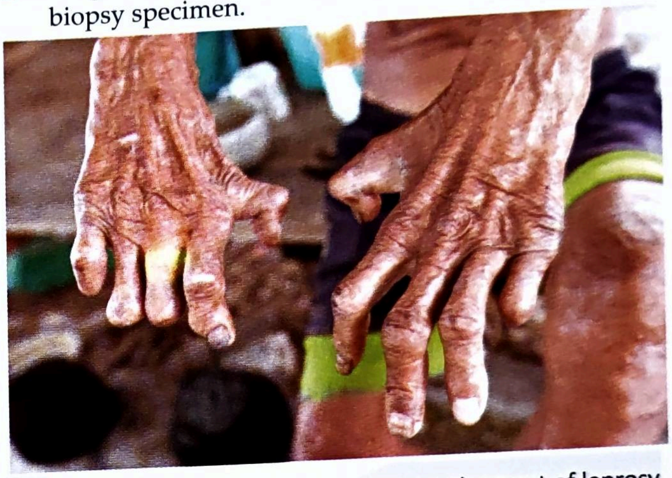


**Figure 142:** Clawing of hands in ulnar involvement of leprosy

## Vitiligo

Vitiligo is a loss of skin melanocytes that causes the areas of skin depigmentation of varying sizes. Cause is unknown. But the condition may be autoimmune, up to 1/3rd of the patients have evidence of other autoimmune disease. Diagnosis often obvious on examination.

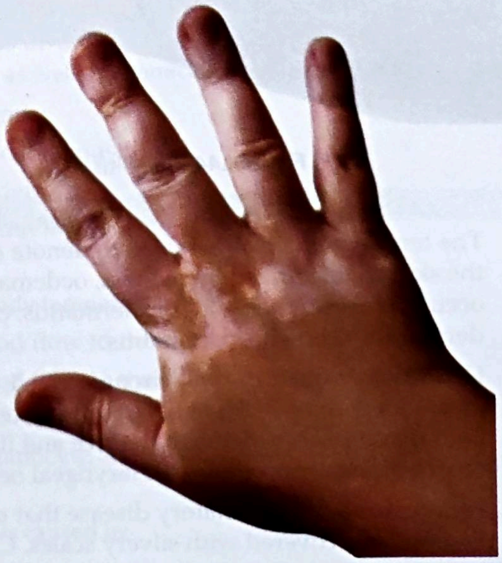


**Figure 143:** Vitiligo

- Aetiology is unclear, but melanocytes are lacking in affected areas.

- This disease is characterized by depigmented areas, usually sharply demarcated and often symmetric. Depigmentation may be localized involving one or two spots or entire body segments (segmental vitiligo), rarely it may be generalized, involving most of the skin surface.
- Vitiligo most often involves face (especially around the orifices), digits, dorsal hands, flexor wrists, elbows, knees, shins, dorsal ankles, armpits, inguinal areas, anogenital area, umbilicus and nipples. Hair in vitiliginous area is usually white.
- Diagnosis is done by clinical evaluation. Differential diagnosis includes postinflammatory hypopigmentation, leprosy, chemical leukoderma and leukoderma due to melanoma.

## Cellulitis

Cellulitis is acute bacterial infection of the skin and subcutaneous tissue most often caused by streptococci or staphylococci. Symptoms and signs include pain, rapidly spreading erythema, oedema, fever and enlargement of regional lymph nodes. Diagnosis is done by appearance of the skin lesions, culture of the tissue of the lesion.

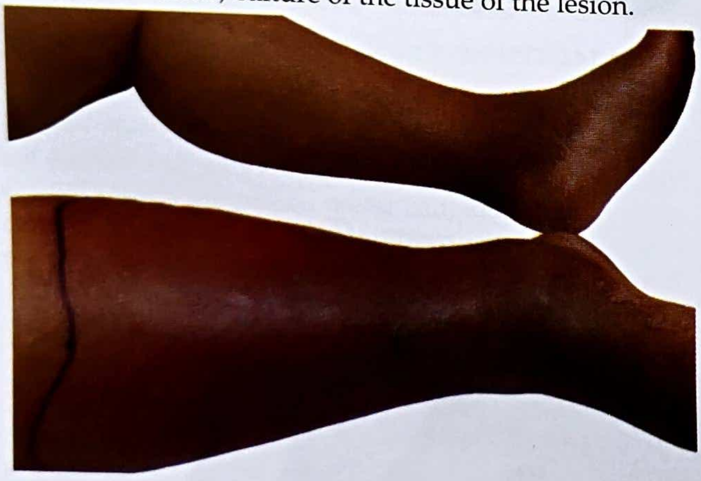


**Figure 144:** Cellulitis

- Cellulitis is most often caused by Streptococcus pyogenes or Staphylococcus aureus. Risk factors for the development of the lesion include trauma, ulceration, fungal infection, other skin barrier compromise due to preexisting skin disease. Persons with chronic venous insufficiency or lymphoedema may also contribute the rapid spread of cellulitis of the susceptible part of the body.
- Infection is most commonly observed in the lower limb. Cellulitis is typically unilateral in presentation. Stasis dermatitis mimics cellulitis, but is usually bilateral in clinical presentation. Local erythema and local tenderness, lymphangitis and lymphadenitis are observed. The skin of the affected area is usually hot, red and oedematous, often with surface of the skin appears as the skin of the orange (peau d orange). The borders of the cellulitis are indistinct. Petechiae are common, large areas of ecchymoses are rare. Vesicles and bullae may develop and rupture, occasionally with necrosis of the involved skin.
- Fever, chills, tachycardia, headache, hypotension and delirium may precede cutaneous findings for several hours.
- Diagnosis is done by physical examination, blood and tissue culture.
- Differential diagnosis of cellulitis include stasis dermatitis and deep venous thrombosis. Stasis thrombosis is usually bilateral, whereas cellulitis is unilateral in clinical presentation. Deep vein thrombosis is having several distinctive clinical features than cellulitis i.e. normal skin temperature, normal or cyanotic skin colour, smooth surface and non existant lymphangitis and lymphadenitis. Whereas cellulitis is presented with raised skin temperature, reddish discolouration of the skin, peau de orange skin appearance and frequent lymphangitis and lymphadenitis.
- **Prognosis:** most of the cellulitis will respond with antibiotic therapy.

**Key summary of the chapter**

- The term eczema is often used to denote dermatitis (inflammation of dermis). This is superficial inflammation of the skin characterized by redness, oedema, oozing, crusting, scaling and sometimes formation of vesicles. This can occur in several forms: atopic dermatitis, contact dermatitis, exfoliative dermatitis, hand and foot dermatitis, stasis dermatitis, seborrheic dermatitis.
- Urticaria is migratory, well-circumscribed, erythematous, pruritic plaques on the skin. This may also be accompanied by angioedema which results from mast cell and basophil activation in the deeper dermis and subcutaneous tissues and manifests as oedema of the face and lips, extremities or genitals. Angioedema can be life threatening if airway obstruction occurs because of laryngeal oedema or tongue swelling.
- Psoriasis is an inflammatory disease that manifests most commonly as well-circumscribed, erythematous papules and plaques covered with silvery scales. Cause is unclear but seems to involve immune system. Common triggers include trauma, infection and certain drugs. Symptoms are usually minimal with occasional mild itching, but cosmetic implications may be major. Some people develop severe disease with arthritis. Diagnosis is by appearance and distribution of the lesions.

- Lichen planus (LP) is a recurrent, pruritic, inflammatory eruption characterized by small, discrete, polygonal, flat-topped, violaceous papules that may coalesce into rough scaly patches, often accompanied by oral lesions. Diagnosis is usually clinical and supported by skin biopsy.
- Pemphigus vulgaris is an uncommon, potentially fatal, autoimmune disease characterized by intraepidermal blisters and extensive erosions on an apparently healthy skin and mucous membranes. Pemphigus folicaceous is a generally benign blistering disorder characterized by splitting high in epidermis, causing erosions to form on the skin. These are categorized under bullous diseases. In this section, we are going to discuss pemphigus vulgaris as this is most fatal, commonly observed in Ayurveda hospitals among the blistering diseases.
- In bullous pemphigoid, bullae, are elevated, fluid filled blisters ≥ 5 mm in diameter. Bullous pemphigoid is an autoimmune, skin disorder causing chronic, pruritic, bullous eruptions in elderly patients. Diagnosis is done by skin biopsy.
- The term mycosis or fungal infections refers to the diseases caused by fungi (yeast or mold). Dermatophytosis is the term used for fungal infections of the keratin in the skin and nails. Symptoms and signs may vary by the site of the infection. Diagnosis is done by clinical appearance and by examination of skin scraping on potassium hydroxide wet mount.
- Leprosy is a chronic infection caused by the acid fast bacillus Mycobacterium leprae, which has a unique tropism for peripheral nerves, skin and mucous membranes. Symptoms are myriad and include anaesthetic, polymorphic skin lesions and peripheral neuropathy. Diagnosis is done by clinical evaluation and confirmed by biopsy.
- Vitiligo is a loss of skin melanocytes that causes the areas of skin depigmentation of varying sizes. Cause is unknown. But the condition may be autoimmune, up to 1/3rd of the patients have evidence of other autoimmune disease. Diagnosis often obvious on examination.
- Cellulitis is acute bacterial infection of the skin and subcutaneous tissue most often caused by streptococci or staphylococci. Symptoms and signs include pain, rapidly spreading erythema, oedema, fever and enlargement of regional lymph nodes. Diagnosis is done by appearance of the skin lesions, culture of the tissue of the lesion.

## Self-Assessment: Questions for Reviews

### Short essay questions

- Describe eczema
- Describe atopic dermatitis
- Explain urticaria
- Describe psoriasis
- Describe pemphigus vulgaris
- Describe tinea versicolor
- Explain leprosy
- Describe vitiligo
- Explain cellulitis

### MCQs

1. **Macule is considered as**

   a. Inspection finding;
   b. Palpable finding;
   c. Both inspection and palpation finding;
   d. None of the above

*Answer*: (a)

2. **The layer of the epidermis that contains melanocytes is**

   a. Stratum basale;
   b. Stratum lucidum;
   c. Stratum spinosum;
   d. Stratum corneum

*Answer*: (a)

3. **Most body odour is the result of bacterial metabolism of the secretions produced by ..........glands.**

   a. Ceruminous glands;
   b. Sebaceous glands;
   c. Eccrine sweat glands;
   d. Apocrine sweat glands

*Answer*: (d)

4. **The layer of the skin that provides protection against bacteria as well as chemical and mechanical injuries is**

   a. Dermis;
   b. Subcutaneous tissue;
   c. Epidermis;
   d. Sebum layer

*Answer*: (c)

5. **When body temperature raises above normal**

   a. Blood flow to the skin decreases;
   b. Blood flow to the skin increases;
   c. Vasoconstriction occurs;
   d. Melanocyte activity increases

*Answer*: (b)

6. **Leprosy is caused by**

   a. Virus; b. Bacteria;
   c. Fungus; d. Protozoa

*Answer*: (b)

7. **Dermatographism is the method of examination performed for the confirmation of the diagnosis of**
   a. Eczema; b. Urticaria;
   c. Pemphigus vulgaris; d. Cellulitis

*Answer*: (b)

8. **Nikolski's sign is indicative of the diagnosis of**
   a. Pemphigus vulgaris;
   b. Cellulitis;
   c. Leprosy;
   d. Urticaria

*Answer*: (a)

9. **Vesicles contain**
   a. Fluid; b. Pus; ]
   c. Soft tissue; d. Hard tissue

*Answer*: (a)

10. **Tinea cruris afflicts ............of the body.**
   a. Head; b. Neck;
   c. Groin; d. Whole body

*Answer*: (c)

### Chapter resources

- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee brothers, New Delhi, 2005
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- https://nationaleczema.org/eczema/types-of-eczema/contact-dermatitis/
- https://www.semanticscholar.org/paper/Exfoliative-Dermatitis%3A-A-Clinico-etiological-Study-Dhali-Haroon/a9ef843353033c87a4a48129f5577a2985d81af4/figure/0
- https://www.hollywooddermatology.com/2023/09/10/10-common-causes-of-contact-dermatitis/
- https://rejuvadermatology.com/conditions/stasis-dermatitis/
- https://www.verywellhealth.com/seborrheic-dermatitis-coping-4771661
- https://www.consultant360.com/articles/dermatographism
- https://en.wikipedia.org/wiki/Angioedema
- https://wmderma.com/what-is-psoriasis-what-are-the-symptoms-and-treatment/
- https://en.wikipedia.org/wiki/Lichen_planus
- https://www.dermatologyadvisor.com/home/decision-support-in-medicine/dermatology/pemphigus-vulgaris/
- https://dermatologyandsurgeryassociates.com/dermatology/bullous-pemphigoid/
- https://www.verywellhealth.com/tinea-corporis-7113407
- https://www.healthline.com/health/tinea-versicolor#symptoms
- https://www.everydayhealth.com/leprosy/
- https://www.news-medical.net/health/Leprosy-Stigma.aspx
- https://www.healthdirect.gov.au/vitiligo
- https://www.nhs.uk/conditions/cellulitis/

***

# CHAPTER
# 34

# Galaganda

## Learning Objectives

- ⇨ To learn the concept of Galaganda
- ⇨ To understand the Nidana Panchaka of Galaganda as mentioned in Ayurveda literatures
- ⇨ To learn the Asadhya Lakshana of Galaganda

## Introduction

*Galaganda* is a spectrum of diseases where we can observe either a large or small swelling around the neck. If there are multiple swellings around the neck, such disease is termed as *Gandamala*. As there is a appearance of swelling it is considered to be due to the vitiation of *Kapha Dosha*.

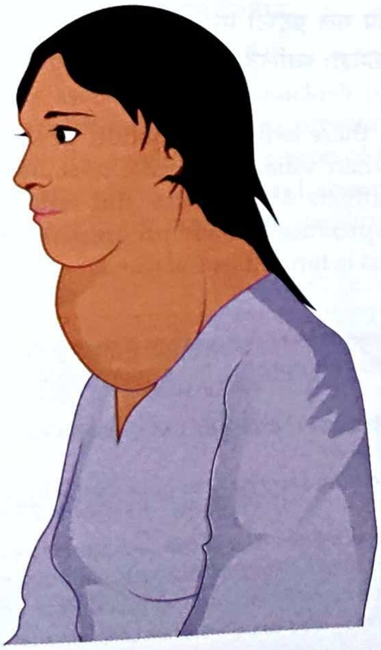


Figure 145: Pratyatma Lakshana of Galaganda

As far as the current understanding is concerned, a single swelling in the neck can be either thyroid swelling or lymph node swelling and multiple swellings observed around neck are probably due to infection such as tuberculosis or due to metastasis occurring secondary to malignancy.

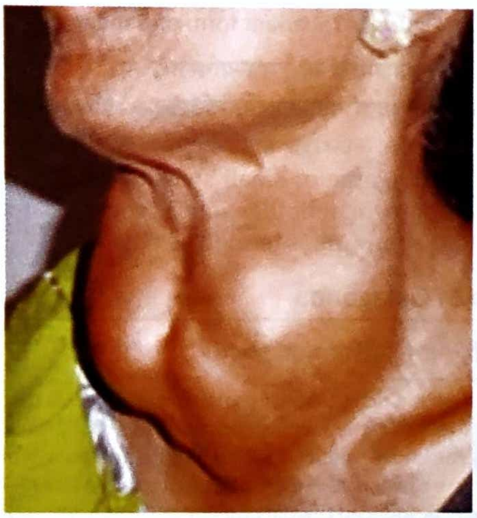


Figure 146: Lakshana of Gandamala

## Definition

निबद्धः श्वयथुर्यस्य मुष्कवलम्बते गले।
महान वा यदि वा ह्रस्वो गलगण्डं तमादिशेत्॥1॥ Ma.Ni. – 38/1

*Galaganda*[1] is a either a huge or small swelling observed around the neck as if hanging around the neck like appearance of *Mushka* (scrotum).

---

[1] पवनश्लेष्म मेदोभिर्गलगण्डो भवेद्बहिः। वर्धमान. स कालेन मुष्कवल्लवतेऽतिरुं॥53॥ A.Hr.U. -21/53
The swelling produced due to the vitiation of Vata, Kapha and Medas which is externally seen and continuously growing. In due course of time, the swelling will look like scrotum and is painful.

**गलस्य पार्श्वे गलगण्ड एकः स्याद्गण्डमाला बहुभिस्तु गण्डैः।**

Ca.Chi. – 12/79

*Galaganda* is a single swelling observed around the neck at the side of the throat. The disease where multiple swellings around the neck is termed as *Gandamala*.

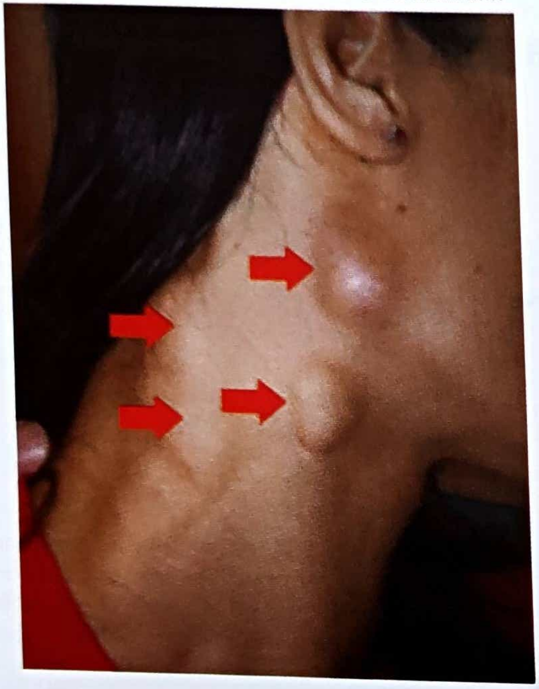


**Figure 147:** Variant form of Gandamala

**प्युक्तं, 'महान्तं शोथमल्पं वा हनुमन्यागलाश्रयम्।**
**लम्बन्तं मुष्कवद्दृष्ट्वा गलगण्ड विनिर्दिशेत् -' इति॥1॥**

Madhu, Ma.Ni. – 38/1

Pendulum like large or small swelling observed around *Hanu* (temporo mandibular joint), and throat which is similar to the scrotum is termed as *Galaganda*.

## Nidana of Galaganda

**मात्स्यमाहिषवाराहपिशितामकमूलकम्।**
**माषसूपदधिक्षीरें सुक्तेक्षुरसफाणितम्॥1॥**
**अवाक्शय्यां च भजतो द्विषतो दन्तधावनम्।**
**धूमच्छर्दनगण्डूषानुचितं च सिराव्यधम्॥2॥**
**क्रुद्धा. श्लेष्मोल्वणा दोषाः कुर्वन्त्यन्तैर्मुखं गदान्।** A.Hr.U. – 21/1-3

As per *Ayurveda* literatures, there is no specific aetiological factors (*Nidana*) causing *Galaganda* are being mentioned. *Galaganda* is specifically mentioned in *Ashtanga Hridaya* by *Vagbhata* in the context of *Mukharoga*. *Vagbhata* has mentioned specific *Nidana* (aetiological factors) for *Mukharoga*. Hence, these *Nidana* can be taken as *Nidana* for the manifestation of *Galaganda* too.

- Intake of fish, meat of buffalo, pig[2]
- Intake of unriped radish
- Soup prepared from blackgram
- Intake of curds, milk and milk products
- Intake of sugar cane and sugar cane products[3]
- Improper sleeping position
- Person who avoids brushing the teeth[4]
- Improper measures after *Dhumana* (medicated smoking), *Chardana* (emesis therapy), *Gandusha* (a specific measure of cleaning of oral cavity), *Siravyadha* (a form of blood letting)[5]

## Samprapti of Galaganda

**यस्य श्लेष्मा प्रकुपितो गलबाह्येऽवतिष्ठते।**
**शनैः संजनयेच्छोफं गलगण्डोऽस्य जायते॥21॥** Ca.Su. – 18/21
**वातः कफश्चापि गले प्रदुष्टो मन्ये च संश्रित्य तथैव मेदः।**
**कुर्वन्ति गण्डं क्रमशः स्वलिङ्गैः समन्वितं तं गलगण्डमाहुः॥2॥**

Ma.Ni. – 38/2

First of all, there will be vitiation of *Kapha Dosha* in the body. when vitiated *Kapha Dosha* moves out from *Mahasrotas* afflicts *Medo Dhatu* and enters the external part of neck produces slowly progressing *Shopha* around the neck. This is termed as *Galaganda*.

**G K**

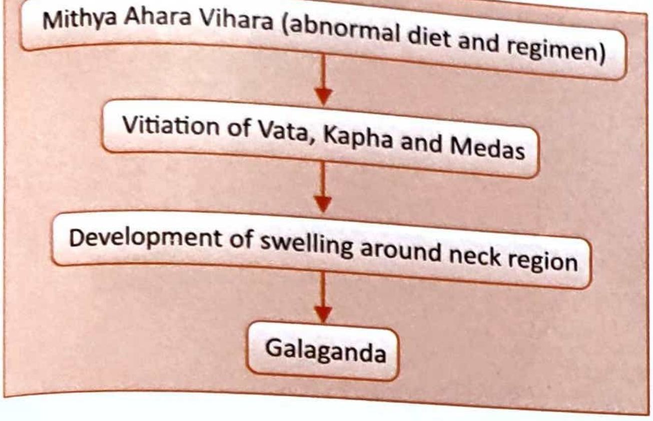
[2]
- Fish is a rich source of proteins upto 17-20%, fair source of vitamin B. Lysine, threonine are the proteins present in fish.
- Meat of cattle, buffalo contains 17-20% of proteins, good source of vitamin B, iron, phosphorus, but a poor source of calcium.
- The above said food substances are the poor source of iodine.

[3] All these substances are the poor sources of iodine. If a person continuously consumes these substances, there may be a possibility of iodine deficiency induced thyroid swelling.

[4] In this particular occasion, the person may develop halitosis (bad breath from the mouth secondary to poor dental hygiene). If a person develops swelling around the neck can be attributable to lymph node swelling.

[5] The above said measures are coming under the category of Shodhana (purificatory) procedures. The above said procedures are responsible for the inflammation of upper alimentary canal (mouth and surrounding structures, oesophagus or stomach). Improper post treatment measures may lead to the persistence of inflammation of upper alimentary canal including oral cavity and surrounding structures. For example, if Dhumana therapy is performed without proper post treatment measures, this may lead to persistence of inflammation of oral cavity, throat and surrounding structures. Thyroid gland one such organ which is situated in the throat region; thus inflammation of the thyroid gland may also be observed.

As far as the functional anatomy of thyroid gland is concerned, the gland is composed of large numbers of closed follicles (100-300 micrometers in diameter) filled with a secretory substances called colloid and lined with cuboidal epithelial cells that secrete into the interior of follicles. In case of abnormal purificatory procedures performed, there will be inflammation of the gland leading to the hypertrophy of the thyroid cells leading to increased secretion of the thyroid gland. Thus, abnormal purificatory procedure used to eliminate the vitiated Kapha Dosha may lead to the abnormal functioning of the upper alimentary canal including thyroid gland.


Mithya Ahara Vihara (abnormal diet and regimen)
Vitiation of Vata, Kapha and Medas
Development of swelling around neck region
Galaganda

## Sankhya Samprapti

**3 types:**

1. *Vataja Galaganda*
2. *Kaphaja Galaganda*
3. *Medoja Galaganda*

**Special Note:** There is no mentioning of *Pittaja Galaganda* due to *Vyadhi Svabhava* (specific nature) of *Galaganda*.

## Vataja Galaganda

तोदान्वितः कृष्णसिरावनद्धः श्यावोऽरुणो वा पवनात्मकस्तु।
पारुष्ययुक्तश्चिरवृद्ध्यपाको यदृच्छया पाकमियात्कदाचित्।।3।।
वैरस्यमास्यस्य च तस्य जन्तोर्भवेत्तथा तालुगलप्रशोषः।
Ma.Ni. – 38/3,4

कृष्णोऽरुणो वा तोदाढ्यः स वातात्कृष्णराजिमान्।
वृद्धस्तालुले शोषं कुर्याच्च विरसास्यताम्।।54।। A.Hr.U. – 21/54

*Vataja Galaganda* is associated with blackish or reddish coloured swelling, pricking type of pain, presence of black coloured veins over the swelling. This type of *Galaganda* is responsible for dryness of mouth and abnormal taste perception on increase in the size of the swelling.

## Kaphaja Galaganda

स्थिरः सवर्णो गुरुरुप्रकण्डूः शीतो महांश्चापि कफात्मकस्तु।।4।।
चिराभिवृद्धिं भजते चिराद्वा प्रपच्यते मन्दरुजः कदाचित्।
माधुर्यमास्यस्य च तस्य जन्तोर्भवेत्तथा तालुगलप्रलेपः।।5।।
Ma.Ni. – 38/4,5

स्थिर. सवण. 'कृण्डूमान् शीतस्पर्शो गुरुः कफात्।
वृद्धस्तालुले लैप कुर्याच्च मधुरास्यताम्।।55।। A.Hr.U. -21/55

*Kaphaja Galaganda* is associated with firm swelling around the neck. The colour of the swelling is similar to the colour of the body, itching. When there is increase in the swelling, the person is presented with sensation of coating over the palate and throat and sweetish taste of the mouth. The swelling is also associated with mild pain.

## Medoja Galaganda

स्निग्धो गुरुः पाण्डुरनिष्टगन्धो मेदोभवः कण्डुयुतोऽल्परुक् च।
प्रलम्बतेऽलाबुवदल्पमूलो देहानुरूपक्षयवृद्धियुक्तः।।6।।
स्निग्धास्यता तस्य भवेश्च जन्तोर्गलेऽनुशब्दं कुरुते च नित्यम्।
Ma.Ni. – 38/6,7

मेदसः श्लेष्मवद्धानिवृद्धयोः सोऽनुविधीयते।
देहं वृद्धश्च कुरुते गले शब्दं खैरेऽल्पताम्।।56।। A.Hr.U. – 21/56

*Medoja Galaganda* is associated with the features similar to clinical features of *Kaphaja Galaganda*. The swelling increases and decreases in its size in proportion to increase and decrease of size of the body. When there is increase in size of the swelling, the person may present with weak sound production.

## Asadhya Lakshana of Galaganda

कृच्छ्राच्वसन्तं मृदुसर्वगात्रं संवत्सरातीतमरोचकार्तम्।।7।।
क्षीणं च वैद्यो गलगण्डयुक्तं भिन्नस्वरं चापि विवर्जयेश्च।
Ma.Ni. – 38/7,8

**Based on nature of swelling:**

कर्कन्धुकोलामलकप्रमाणैः कक्षांसमन्यागलवङ्गणेषु।।8।।
मेदःकफाभ्यां चिरमन्दपाकैः स्याद्गण्डमाला बहुभिश्च गण्डैः।
Ma.Ni. – 38/8,9

- When the person is presented with breathing discomfort[6] (*Shvasa*)
- Softness of the body parts[7]
- When the duration of the illness is more than one year[8]
- When the disease is associated with tastelessness (*Arochaka*), emaciation of the body (*Kshina Deha*) and hoarseness of voice (*Bhinna Svara*)
- When the person is presented with *Gandamala* (group of swellings around the neck[9])

---

[6] When the swelling around the neck region compresses the upper respiratory passages may be presented with breathing discomfort. The nature of breathlessness in this occasion will be inspiratory in nature as partial or complete upper respiratory tract obstruction is observed in the suffering individual.

[7] This is attributable to increased quantities of hyaluronic acid and chondroitin sulfate bound with protein form excessive tissue gel in the interstitial compartment. This will lead to the increase of interstitial compartment. As the fluid in the interstitial spaces is having gel nature, this is nonmotile and the oedema observed in non pitting type.

[8] As per Ayurveda fundamentals, any of the disease which persists in an individual for upto one year or more, such diseases are considered to be incurable in nature.

[9] Most common cause of this type of swelling is group of enlarged lymph nodes around the neck.

- If the size of the swelling is like the size of *Karkandhu, Kola* and *Amalaka*[10]
- If the swelling is seen in *Kaksha, Amsa, Manya, Gala* and *Vankshana*[11]

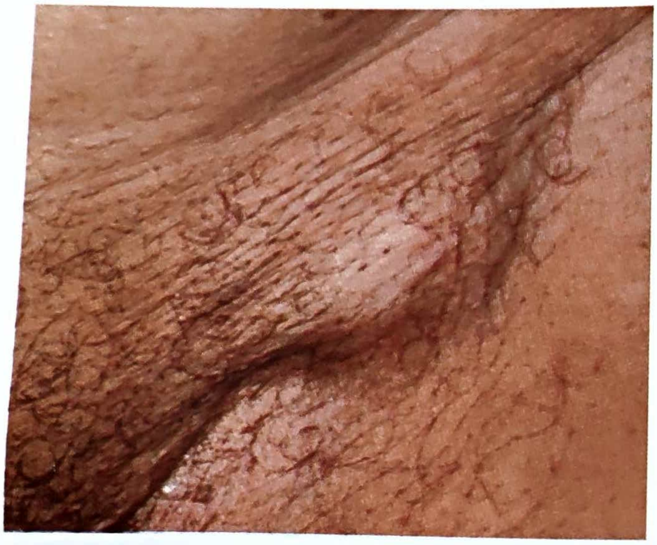


**Figure 148:** Lymph node swelling in inguinal region

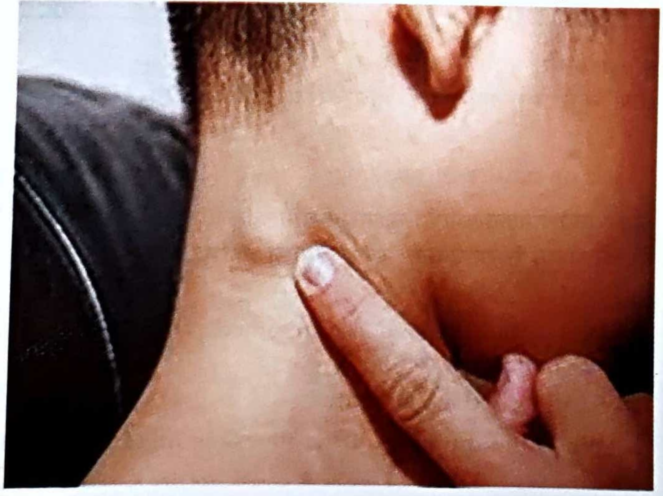


**Figure 149:** Lymph node swelling in the neck region

- If the swelling is caused due to the vitiation of *Meda* and *Kapha*
- If the swelling is slowly increasing in size[12]
- If the swelling is slowly showing signs of suppuration[13] (pus formation)

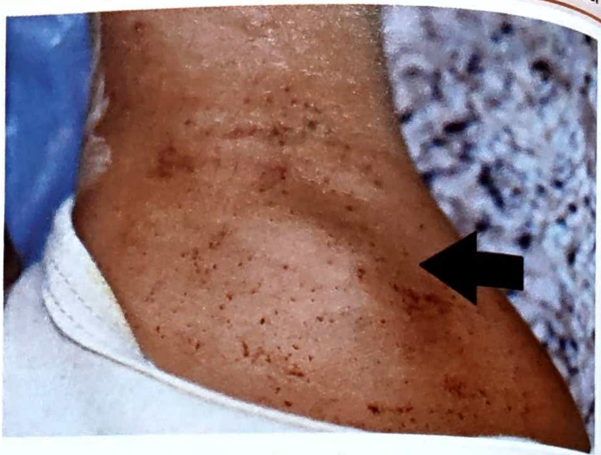


**Figure 150:** Lymph node swelling in the axillary region

## Self-Assessment: Questions for Reviews

### Short essays

- Explain *Galaganda* and *Gandamala*
- Explain the *Nidana Panchaka* of *Galaganda* in brief

### MCQs

**1. Which of the following is not the type of** Galaganda?

a. Vataja; b. Pittaja;

c. Kaphaja; d. Medoja

*Answer*: (b)

**2. Galaganda is a ................ Pradoshaja Vikara.**

a. Rakta; b. Medo;

c. Mamsa; d. Majja

*Answer*: (c)

**3. Sankhya Samprapti of Galaganda is**

a. 3; b. 5;

c. 7; d. 2

*Answer*: (a)

**4. Which of the following is not mentioned as the size of the swelling of Galaganda as per Madhava Nidana?**

a. Karkandhu; b. Kola;

c. Amalaki; d. Vibhitaki

*Answer*:(d)

**5. Which of the following is considered under Mamsa Pradoshaja Vikara?**

a. Gulma; b. Galaganda;

---

GK

[10] Karkandhu (Ziziphus mauritiana), also known as In, Indian jujube, Indian plum or Chinese apple (approximately 5 cms long)
Kola (Ziziphus jujube) – mid sized fruits (2-3 cms long)
Amalaka (Emblica officinalis (approximately about 5 to 6 cms). The names of the fruits also indicate the consistency of the swelling. Koka, Karkandhu and Amalaka consistencies are smooth, little harder and little hardest respectively.

[11] The swellings observed in the axillary region, neck region and groin region is considered to be difficult in management. These swellings are considered to be lymph node swellings in these regions.

[12] There is a possibility of compression or infiltration of respiratory passages is considered to be difficult to cure.

[13] This is attributable to the mechanism of septic shock, spread of infection from the pus formed in the neck leading to high fever, marked vasodilation, high cardiac output, sludging of blood and disseminated intravascular coagulation sequentially.

c. Grahani; d. Hridroga

*Answer*: (b)

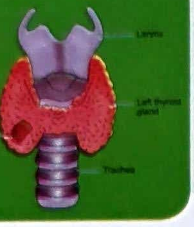
### Chapter resources

- Madhava Nidana – 38th chapter: Galaganda Gandamala Apachi Granthi Arbuda Nidana
- Charaka Samhita Chikitsa Sthana – 12th chapter: Shvayathu Chikitsa Adhyaya
- Ashtanga Hridaya Uttara Tantra – 21st chapter: Mukharoga Nidana Adhyaya
- Sushruta Samita NIdana Sthana – 11th chapter: Granthi Apachi Arbuda Galaganda Nidana
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.medizzy.com
- www.yogavanahill.com
- www.biopsy-thyroid-ent.com
- www.researchgate.net
- www.pbmchealth.org
- www.medicalnewstoday.com

***

CHAPTER

35



# Thyroid Disorders

**Learning Objectives**

- ⇨ To know the functions of thyroid gland in brief
- ⇨ To have a comprehensive understanding of thyroid diseases
- ⇨ How to perform the physical examination of the patient of thyroid disease
- ⇨ To know about the investigations preferred and their interpretation

Thyroid gland is one of the major endocrine glands which controls all of metabolic processes of the body. This gland is situated in the anterior neck just below the cricoid cartilage, consists of 2 lobes connected by an isthmus. The diseases affecting thyroid gland can range from harmless swelling termed goitre to life threatening cancer. The most common thyroid abnormalities manifested in human beings is due to abnormal production of thyroid hormones. It could be the increased production of hormones termed as hyperthyroidism and decreased production of thyroid hormones termed as hypothyroidism.

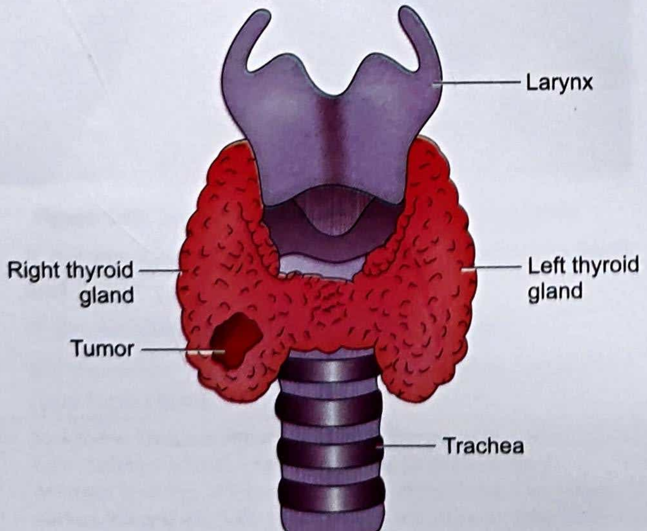


**Figure 151:** Functional anatomy of thyroid gland

The secretions secreted by thyroid gland[1] are T3 (triiodothyronine – 7% of thyroid hormones), T4 (thyroxin – 93% of thyroid hormones) and calcitonin. T3 is the most active form; T4 is having only minimal hormonal activity. T4 is much longer lasting and can be converted to T3 in most tissues and thus T4 acts as reservoir for T3. Calcitonin is released in relation to hypercalcemia and lowers the serum calcium levels.

Questions of endocrine dysfunction generally revolve around hyper and hypofunction of specific glands with consequent clinical sequelae. In case of thyroid dysfunction, clinical assessment begins with analysis of categorisation of hyperfunction and hypofunction of thyroid gland. Most thyroid diseases are more common in women than men.

## Hyperthyroidism

- Clinical features of marked thyroid overactivity are termed as thyrotoxicosis. Milder degrees of hyperthyroidism do not have all the toxic aspects and may only be confirmed after biochemical investigation. The diagnosis is based on the presence of one or two suspicious signs.
- Important features include heat intolerance and excessive sweating; increased irritability and emotional lability, palpitations, dyspnoea, tremors, weakness and marked weight loss despite a good appetite, menstrual irregularity most commonly, scanty menstruation, excessive thirst.

---

GK [1] Thyroid hormones can increase basal metabolic rate for about 60 to 100 percent above normal when large quantities of the hormones are secreted.

- The hands may display a fine tremor which is appreciated by placing a piece of paper on the outstretched hands.
- Two important signs of hyperthyroidism observed are lid retraction and lid lag signs which are appreciated by exophthalmos and Von Graefe's sign respectively. In lid retraction, a rim of white sclera is seen above the iris when the patient is at rest and looks ahead. In assessing lid lag, Von Graefe's sign is performed. In this test, the observer moves his finger slowly downwards from above seated patient, who is asked to watch the finger all the way without moving the head; the upper eyelid is then seen to lag behind the eyeball.

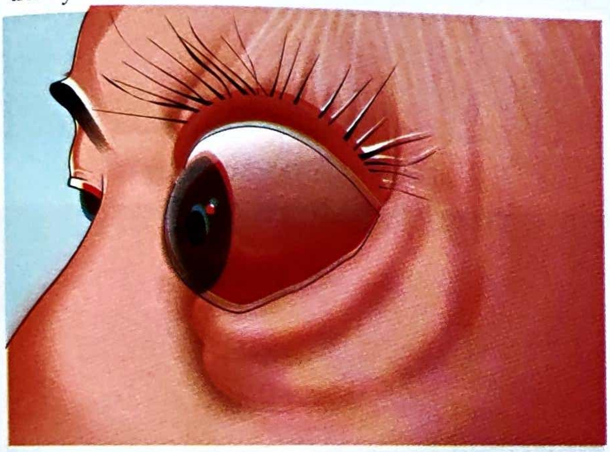


**Figure 152:** Exophthalmos or Von Graefe' sign

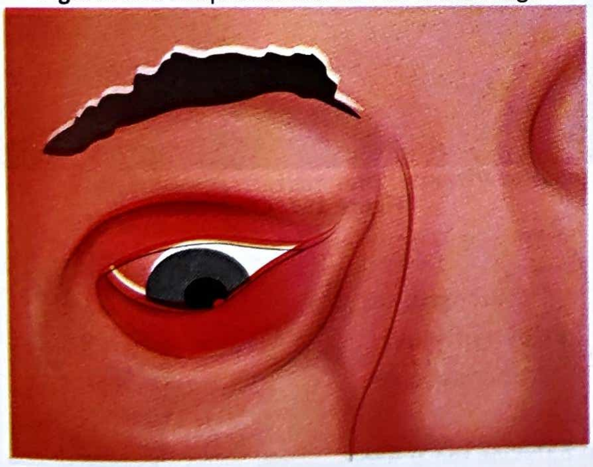


**Figure 153:** Lid lag seen in patient of hyperthyroid

## Hypothyroidism

- In elderly individuals, the patient may have lethargy, loss of concentration and memory. Cold intolerance is the frequent symptom, paraesthesia in the distribution of the median nerve in the hand due to carpal tunnel syndrome.
- Deafness and unsteady gait may also be observed associated with aches and pains in the muscles and joints. Weight gain is also seen. Constipation is also common.
- Hypothyroidism is difficult to diagnose in young women who are presented with menorrhagia, infertility or recurrent abortion.
- Low IQ (Intelligence Quotient) and short stature are the commonest sequelae observed in hypothyroidism.

## Method of physical examination of the patient of thyroid disease

Physical examination in the patient of thyroid dysfunction can be categorised into **general survey, local examination** and **general examination.**

### (a) General survey

- **Build and state of nutrition of the patient:** In thyrotoxicosis, the patient is usually thin and underweight. There will be excess sweating along with muscle wasting. In hypothyroidism, the patient is obese and overweight. In case of thyroid carcinoma, there will be signs of anaemia and cachexia.
- **Facies:** In thyrotoxicosis, facial expression of excitement, tension, nervousness or agitation with or without exophthalmos is seen. In case of hypothyroidism, one can see the puffiness of the face without any expression.
- **Mental status and intelligence:** Hypothyroid patients are most commonly seen as dull patients.
- **Pulse rate:** In thyrotoxicosis, pulse rate is irregular, whereas in hypothyroidism, there will be bradycardia.
- **Skin:** Skin is moist, particularly of hands in primary thyrotoxicosis. Skin is dry and inelastic in myxoedema.

### (b) Local examination

- Local examination of the thyroid gland is performed by examination of the neck where the clinician stands behind the patient and performs the examination. **Inspection, palpation** and **auscultation** are performed.

#### i. Inspection

- **Pizzillo's method:** In this method, the hands are placed behind the head and the patient is asked to push his/her head backwards against the clasped hands on the occipital region of the head.

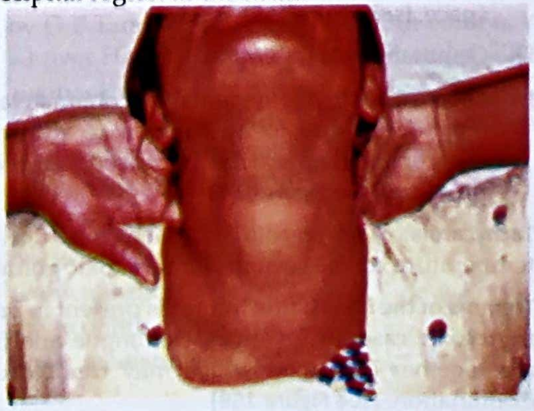


**Figure 154:** Pizzilo's method

- Ask the patient to swallow and watch for the movement of thyroid gland. Normally, thyroid gland moves upwards on deglution.

### ii. Palpation

This should be done with the patient's neck slightly flexed. The gland may be palpated from the behind and from the front. The patient should be seated on the stool and the clinician stands behind the patient. Palpation should be carried out in entirety, every part of the gland is palpated to note about the nature of the swelling including size, shape, consistency, mobility of the swelling etc, nodule or hardness of the gland. Palpation of the cervical lymph nodes should be done while considering the diagnosis of thyroid malignancy.

### iii. Auscultation

- In primary toxic goitre, a systolic bruit may be heard over the goitre due to increased vascularity.

## (c) General examination:

- **Eye signs:** 4 types of important changes can be observed in the eyes in case of thyrotoxicosis.

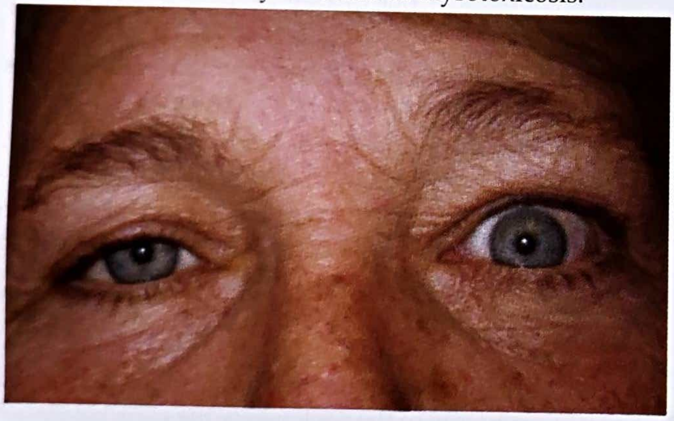


**Figure 155:** Lid retraction

i. **Lid retraction:** In this upper eyelid is lying higher than the normal and lower eyelid is in its normal position. **(see Figure 155)**
ii. **Exophthalmos:** In this situation, the eyeball is pushed forwards due to the increase in fat or oedema or cellular infiltration in retro orbital space. **(see Figure 156)**
iii. Ophthalmoplegia
iv. **Chemosis:** This is oedema of conjunctiva. This may occur due to obstruction to drainage of the conjunctiva by the increased retro orbital pressure. **(see Figure 157)**

- **Tachycardia:** Tachycardia without raise of body temperature can be seen in primary toxic goitre.
- **Tremors of the hands:** fine tremor is present in primary thyrotoxic case. In severe cases, tongue and fingers are together examined which may tremble during examination. **(see Figure 158)**
- **Moist skin:** of the hands and feet are common in case of primary thyrotoxic cases.
- **Searching for metastasis:** Skull, spine, ends of long bones, pelvis should be examined for metastasis.

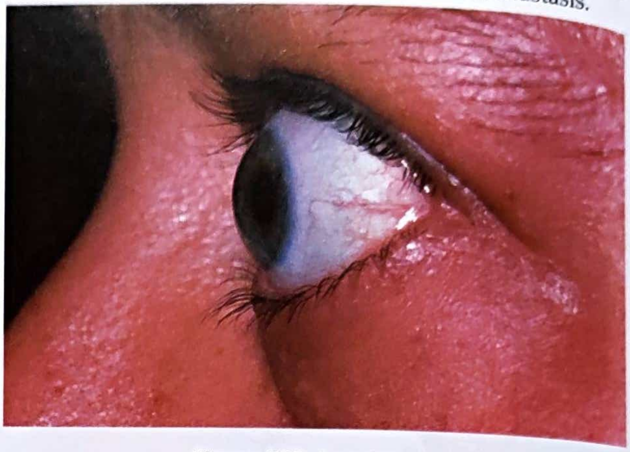


**Figure 156:** Exophthalmos

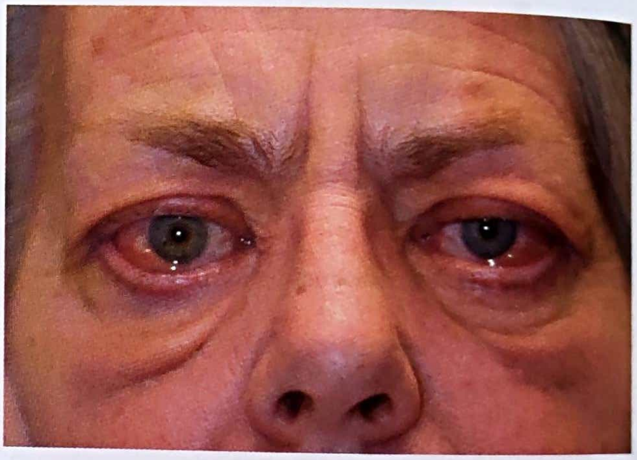


**Figure 157:** Chemosis

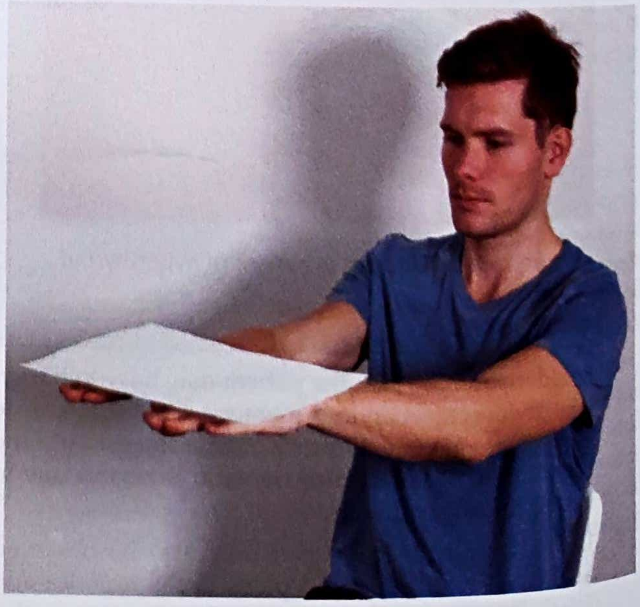


**Figure 158:** Tremors of hands

## Investigations and interpretation

- Thyroid function test (TFT) is performed in the diagnosis of thyroid disease. It includes the analysis of T3, T4 and TSH levels in the blood.
- Thyroid Stimulating Hormone (TSH) measurement is the best means of determining thyroid dysfunction. This is secreted from anterior pituitary gland. Its normal results rules out the diagnosis of hypofunction and hyperfunction of thyroid gland.

| Status of thyroid function | Serum TSH | Serum T4 | Serum T3 |
|---|---|---|---|
| Hyperthyroidism | Low | High | High |
| T3 toxicosis | Low | Normal | High |
| Primary hypothyroidism | High | Low | Low or normal |
| Secondary to pituitary disease | Low or normal | Low | Low or normal |

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain thyroid dysfunction in brief
- Explain hyperthyroidism
- Explain hypothyroidism
- Explain the clinical features of thyroid dysfunction
- How to do the examination of thyroid gland?

### MCQs

1. **Weight gain is observed in**
   a. Hypothyroidism;
   b. Hyperthyroidism;
   c. Both hypothyroidism and hyperthyroidism;
   d. None of the above

*Answer*: (a)

2. **Von Graefe's sign is helpful in the diagnosis of**
   a. Hypothyroidism; b. Hyperthyroidism;
   c. Hypopituitarism; d. Hypogonadism

*Answer*: (b)

3. **Which of the following hormone is not secreted by thyroid gland?**
   a. Triiodothyronine; b. Tetraiodothyronine;
   c. Calcitonin; d. TSH

*Answer*: (d)

4. **Goitre is seen in the patients who are having the deficiency of**
   a. Calcium; b. Iodine;
   c. Sodium; d. Potassium

*Answer*: (b)

5. **The following are the features of thyrotoxicosis except**
   a. Exophthalmos; b. Von Graefe's sign;
   c. Weight loss; d. Weight gain

*Answer*: (d)

6. **Congenital thyroid agenesis leads to the manifestation of**
   a. Acromegaly; b. Cushing's syndrome;
   c. Cretinism; d. Conn's syndrome

*Answer*: (c)

7. **Hypothermia can be seen in**
   a. Hyperthyroidism; b. Hyperparathyroidism;
   c. Myxoedema; d. Goitre

*Answer*: (c)

8. **Increased BMR (basal metabolic rate) is seen in which of the following condition?**
   a. Hyperthyroidism; b. Hypertension;
   c. Acromegaly; d. Starvation

*Answer*: (a)

9. **Graves disease is another name of**
   a. Exophthalmic goitre; b. Cretinism;
   c. Myxoedema; d. Mangolism

*Answer*: (a)

10. **Cretinism is caused by the insufficiency of**
    a. Vitamin A; b. Vitamin D;
    c. Calcium; d. Thyroid hormones

*Answer*: (d)

## Chapter resources

- https://www.vectorstock.com/royalty-free-vector/thyroid-gland-and-larynx-diagram-vector-38234643
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.news.medical.net
- www.jaypeeonline.in
- www.sciencedirect.com
- www.nhs.uk
- www.ophth.uiowa.edu
- www.medistudents.com

***

CHAPTER

36

# Sthaulya Karshya

**Learning Objectives**

- ⇨ To learn the concept of Sthaulya
- ⇨ To learn the Nidana and Samprapti of Sthaulya
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To describe Samanya and Vishesha Lakshana of Sthaulya
- ⇨ To know about Samanya Lakshana of Karshya
- ⇨ To know about the differential diagnosis of Karshya

## Introduction

*Sthaulya*[1] is *Medo Prajoshaja Vikara*, where we can observe excess abnormal *Medo Dhatu* in the individual. As per *Madhavakara*, it is also known as *Medoroga* (a condition where *Medo Dhatu* is excessively and abnormally increased). As per *Charaka*, it is categorised under *Santarpanaja Vikara* i.e. disease caused by over nutrition of the body. This is more commonly seen in the people who are having sedentary lifestyle. In other words to say, when an individual is having more input or intake than output or work, then the person will have excess deposition of *Medas* (fat) in different parts of the body. When one analyses the *Dosha* vitiation, this is manifested due to the increase of *Kapha Dosha* inside the body. As far as the type of the disease is concerned, this is categorised in *Sharirika* (somatic disease) category of *Vikara* under the subheading of *Doshabala Pravritta Vikara* which is categorised under *Adhyatmika Vikara*. This is having *Udbhava Sthana* as *Amashaya*, *Sanchara Sthana* as *Sarva Sharira* (whole body) and *Vyakta Sthana* as *Tvak* (skin), *Sphik* (buttocks), *Udara* (abdomen) and *Stana* (breasts).

## Definition of Atisthula

मेदोमांसातिवृद्धत्वाच्चलस्फिगुदरस्तनः।
अयथोपचयोत्साही नरोऽतिस्थूल उच्यते॥९॥' Ca.Su. – 21/9

The clinical features of *Atisthula* are

- Pendulous abdomen
- Pendulous buttocks
- Pendulous breasts[2]
- Disproportionate increase in the size of the individual[3]
- Poor enthusiasm in any activity[4]

[1] Sthaulya is a clinical condition where in the person will have excess of body fat. This results mainly due to the disproportionate energy intake and energy expenditure, where intake is much higher than expenditure. When an individual consumes more amount of food either carbohydrates, fats or proteins, that will lead to the conversion of respective micromolecules to fat and these converted materials will move to adipose tissues and stored inside the adipose tissues as great as 85-90% of the total adipose tissues.

[2] These features are attributable to the disproportionately increased deposition of adipose tissue in the abdomen, buttocks and breasts beneath the skin and these are the least used parts of the body when one considers the overall activity of the human body.

[3] When an individual is consuming excess amount of food be carbohydrate or fat or protein, will be stored entirely in the form of adipose tissue, to be used for energy later in due course of time. Adipocytes are modified fibroblasts that store almost pure triglycerides in quantities as great as 80 to 95% of the cell volume. These will be stored in subcutaneous tissues in different parts of the body such as abdomen, buttocks and breasts etc. Thus, the excess accumulation of fat tissue more than normal results in the disproportionate increase in the size of the individual.

[4] Regular physical exercise will lead to the increase of muscle mass and decrease of fat mass of the body, where as lack of physical exercise will lead to increase of fat mass and decrease of muscle mass in the body. Excess accumulation of fat in different parts of the body more

- Excess *Medas*[5] and *Mamsa* in the body

Figure 159: Sthaulya

## Nidana of Sthaulya

तदतिस्थौल्यमतिसंपूरणाहरुमधुरशीत स्निग्धोपयोगादव्यायामादव्यवायादिवास्वप्नाद्धर्षनित्यत्वादचिन्तनाद्बीजस्वभावाश्चोपजायते।
तस्य यतिमात्रमेदै- Ca.Su. – 21/4

अव्यायामदिवास्वम श्लेष्मलाहारसेविनः।
मधुरोऽन्नरसः प्रायः स्नेहा मेदः प्रवर्धयेत्॥1॥ Ma.Ni. – 34/1

संतर्पयति यः स्निग्धैर्मधुरैर्गुरुपिच्छिलैः।
नवान्नैर्नवमद्यैश्च मांसैश्चानूपवारिजैः॥3॥
गोरसैगडिकैश्चानैः पैष्टिकैश्चातिमात्रशः।
चेष्टाद्वेषी दिवास्वप्नशय्यासनसुखे रतः॥4॥
रोगास्तस्योपजायन्ते संतर्पणनिमित्तजाः। Ca.Su. – 23/3-5

- Excess[6] intake of food substances
- Excess intake of *Guru* (heavy to digest), *Madhura* (sweet taste), *Snigdha* (unctuous) and *Shita* (cold in touch and potency) substances[7]
- Physical inactivity[8]
- Less indulgence in sexual intercourse[9]
- Sleeping during day time[10]
- Not having any kind of physical or mental stress[11]
- Not having thinking[12]
- Through genetics[13]
- Excess intake of substances which provoke *Kapha Dosha*[14]
- Excess intake of *Picchila* (slimy) food substances[15]
- Excess intake of freshly harvested grains
- Excess intake of freshly prepared alcohol
- Excess intake of meat of marshy and aquatic animals[16]
- Excess intake of milk and milk products[17]
- Excess intake of substances prepared out of flour
- Activities of sedentary lifestyle[18]

## Samprapti of Sthaulya

मेदसोवृतमार्गत्वात् पुष्यन्त्यन्ये न धातवः।
मेदस्तु चीयते तस्मादशक्तः सर्वकर्मसु॥2॥ Ma.Ni. – 34/2

- *Medo Dhatu* is abnormally increased and no other *Dhatu* is nourished
- The person cannot perform any activities because of this abnormal increase

---

than excess will lead to sluggish activity of the body parts. He may have laziness secondary excess fat deposits in the body.

[5] Excess accumulation of Medas (fat) occurs just beneath the skin i.e. subcutaneous tissue all over the body where we can see the more soft curvatures on the skin for example, in the wrist joint etc.

[6] The consumption of food in excess in greater amounts than the body can utilise the same will lead to accumulation of fat. The excess food can be either carbohydrates, fat and proteins can entirely converted to fat in the adipose tissue which can be utilised for energy in future.

[7] Excess intake of substances which are Guru such as blackgram items or curds; Madhura taste such as milk, banana or grapes etc; Snigdha such as excess coconut oil or ghee etc; Shita substances such as excess ice cream intake etc

[8] In less physical activity, the person will have minimum BMR (basal metabolic rate) and accounts for 50 to 70% of the daily energy expenditure in most sedentary individuals. BMR normally averages about 65-70 Calories per hour in an average 70 kg man.

[9] Less indulgence in sexual intercourse will have reduced basal metabolic rate. When there is less metabolism and he is taking the substances in excess or even in normal quantity, may have more accumulation of fat in the adipose tissue.

[10] In case of day time sleeping by an individual, there will be obstructive sleep apnoea due to the fall in the tone of the airway dilator muscles leading to the collapse of the upper airways during sleep in day time. This is specifically seen in the patients of obesity.

[11] We have seen the effect of lack of the physical stress in the context of physical inactivity. When we speak of mental stress, the person likely to take in excess food may be due to death of a parent or severe illness or mental depression.

[12] In this particular situation, the person is not at all having any kind of thinking. The person may have excess consumption of food secondary to lack of mental stress which will be deposited in the body.

[13] In this particular situation, the members of the family share many of the same eating habits and physical activity patterns.

[14] Consumption of food substances such as excess consumption of substances which are heavy to digest or the substances which are prepared from ghee or curds or sweet substances etc Refer volume 1 written by the author in the context of Kapha Prakopaka Karana.

[15] Consumption of food substances which are slimy in nature such as foods prepared by ghee or sugar or jaggery or milk etc

[16] Excess intake of meat of fish or pig etc

[17] Excess intake of milk, curds, butter milk or ghee etc

[18] Activities of sedentary lifestyle include the persons who are having clerical job or the people who are sitting in jewellary shop etc, in toto, all above said aetiological factors will lead to the very high input than its expenditure i.e. supply is more than the demand.

## Samprapti Ghataka of Sthaulya

**Dosha:** *Kapha*

**Dushya:** *Medas*

**Srotas:** *Medovaha Srotas*

**Srotodushti Prakara:** *Sanga* and *Vimargagamana*

**Agni:** *Jatharagnimandya* and *Medo Dhatvagnimandya*

**Ama :** *Jatharagnijanya* and *Medo Dhatvagnijanya*

**Udbhava Sthana:** *Amashaya*

**Sanchara Sthana:** *Sarva Sharira*

**Vyakta Sthana :** *Tvak, Sphik, Udara* and *Stana*

**Rogamarga :** *Abhyantara, Bahya*

**Vyadhi Svabhava:** *Chirakari*

**Sadhyasadhyata:** *Krichrasadhya* to *Asadhya*

**Purvarupa of Sthaulya:** No specific *Purvarupa* are mentioned in *Ayurveda* literatures for this disease.

## Lakshana of Sthaulya

**भवन्ति। अतिस्थूलस्य तावदायुषो ह्रासो जवोपरोधः कृच्छ्रव्यवायता दौर्बल्यं दौर्गन्ध्यं खेदाबाधः क्षुदतिमात्रं पिपासातियोगश्चेति भवन्त्यष्टौ दोषाः।**

Ca.Su. – 21/4

**क्षुद्रश्वास तृषा मोहस्वप्रक्रथनसादनैः।**
**युक्तः क्षुत्स्वेददुर्गन्धैरल्पप्राणोऽल्पमैथुनः॥3॥**
**मेदस्तु सर्वभूतानामुदरेष्वस्थिषु स्थितम्।**
**अत एवोदरे वृद्धिः प्रायो मेदस्थिनो भवेत्॥4॥** Ma.Ni. – 34/3,4

- Decreased life span[19]
- Decreased speed in any of the activity taken up by *Sthula* individual[20]
- Difficulty in sexual intercourse[21]
- Debility[22]
- Bad body odour[23]
- Excessive sweating[24]
- Excessive thirst[25]
- Excessive hunger
- Breathing discomfort on doing slightest physical exertion[26]
- Confusion
- Excess sleep
- Sluggish movements of body parts[27]
- Excess accumulation of *Medas* in the *Udara* (abdomen) region[28]

## Introduction

*Karshya* is a disease involving *Medovaha Srotas*, where there will be abnormal decrease in *Medo Dhatu* is observed. As per *Ayurveda* literatures, *Karshya* is considered to be *Apatarpanajanya Vikara* i.e. the disease manifested due to lack of nutrition of the body. In the current era, we are using the scale of BMI[29] to determine undernourishment and overnourishment. When the BMI is <18, then we can diagnose that the person is having under nourishment and when the BMI is > 25, then we can diagnose that the person is having over nourishment; when the BMI is > 30, then we can confirm that the person is suffering obesity and when the BMI > 40, then hyperobesity is diagnosed.

## Definition of Karshya

**शुष्क स्फिगुदरग्रीवो धमनीजालसन्ततः।**
**त्वगस्थिशेषोऽतिकृशः स्थूलपर्वा नरो मतः॥15॥** Ca.Su. – 21/15

---

**GK**

[19] When an individual is suffering from obesity, he will be having the either more accumulation of fat tissues into the cell and there will be increased circulation of fat tissues in the circulatory system. This pathlogical mechanism may lead to the manifestation of peripheral arterial disease or myocardial infarction etc complication. When the individual is having excess amount of fat in the circulatory system and if it involves the circulatory system and thus, the person may have decreased life span in case of affliction of heart or peripheral arterial system.

[20] This is a vicious cycle. When the person consumes the food which has richness in fat content, that will lead to the excess accumulation of fat in the fat cells. When an individual has less physical activity (sedentary lifestyle), will lead to sluggish movement of the body parts as the person who will have sluggish movement of body parts (people working in jewelry shops, groceries shops etc.

[21] This symptom is attributable to the inability of performing the sexual intercourse, as the excess accumulation of fat occurs in the adipose tissue in the subcutaneous tissue, peritoneal cavity in particular. As the size of the abdomen increases in males and females, the person cannot perform the sexual intercourse.

[22] It is being said that if an individual performs a single episode of strenuous exercise may increase the basal energy expenditure for several hours after the physical activity is topped. Thus, obese individual performs the strenuous exercise in a single setting will have rapid basal metabolic rate and thus, the person

[23] This symptom is attributable to excess sweating. Bad odour is observed due to the presence of urea in the sweat. Sweat contains twice the proportion of urea than that of plasma and this could be the reason for bad body odour.

[24] Normally, 400 ml of sweat is produced in 24 hours on an average. When a person is performing severe form of physical activity, this will increase the basal metabolic rate for several hours. This mechanism will lead to increase loss of heat via sweat.

[25] When an individual is having increased heat loss, there will be the association of enhanced fluid loss and the presence of thirst indicates hypovolemia in the body. There will be production of 1 liter of sweat per hour in a unacclimatised person. When the person is exposed to hot weather for 1 to 6 weeks, production of sweat increases to as much as 2 to 3 liters per hour. Thus, the person frequently develops thirst owing to upsurge in sweating.

[26] This is attributable to the sedentary lifestyle.

[27] This is attributable to the excess accumulation of fat in the subcutaneous tissues, buttocks, breast and abdominal region.

[28] Fat is stored in adipocytes of subcutaneous tissues and in intraperitoneal cavity. It can also be stored in liver and other tissues of the body.

[29] The formula to calculate BMI is w (kg)/ h2 (m). Depending upon the height and weight of the individual, BMI is calculated.

## Nidana of Karshya

सेवा रूक्षान्नपानानां लङ्घनं प्रमिताशनम्।
क्रियातियोगः शोकश्च वेगनिद्राविनिग्रहः॥1 1॥
रूक्षस्योद्वर्तनं स्नानस्याभ्यासः प्रकृतिर्जरा।
विकारानुशयः क्रोधः कुर्वन्त्यतिकृशं नरम्॥1 2॥ Ca.Su. – 21/11,12

- Excess consumption of *Ruksha Annapana* (dry food and drinks) or the substances which has less nutritive value[30]
- Excess fasting or abstinence from food
- Excess consumption of very little amount of food
- Excess exposure to purification therapy such as *Panchakarma* procedures[31]
- Excess grief[32]
- Suppression of natural urges
- Suppression of sleep
- Undergoing *Udvartana* line of treatment by emaciated person[33]
- Frequent bathing[34]
- As a constitution, person will be lean[35]
- Ageing[36]
- As a complication of other chronic debilitating illnesses[37]
- Anger[38]

## Lakshana of Karshya

व्यायाममतिसौहित्यं क्षुत्पिपासामयौषधम्।
कृशो न सहते तद्वदतिशीतोष्णमैथुनम्॥1 3॥
प्लीहा कासः क्षयः श्वासो गुल्मोऽशस्युदराणि च।
कृशं प्रायोऽभिधावन्ति रोगाश्च ग्रहणीगताः॥1 4॥

Ca.Su. – 21/13,14

- The person cannot tolerate exertion caused by excess exercise
- The person cannot tolerate hunger
- The person cannot tolerate thirst[39]
- The person cannot tolerate strong medicines
- Intolerance to excess cold atmosphere
- Intolerance to excess hot atmosphere[40]
- Intolerance to sexual intercourse[41]
- Enlargement of spleen[42]
- Cough
- Breathing discomfort
- Depletion of body tissues[43]

---

GK

[30] When an individual consumes Ruksha substances, that will lead to the increase of Ruksha (dry) quality in the body. Ruksha quality is considered to be one of the major qualities of Vata Dosha. Thus, excess consumption will lead to the increase of Ruksha quality of Vata Dosha.

[31] These aetiological factors will lead to the sequential depletion of carbohydrates, fats and proteins. Glucose is stored as much glycogen as they can – an amount sufficient to supply the energy needs of the body for only 12 to 24 hours. After this, there will be energy utilisation by the body through fat metabolism and this will be followed by protein metabolism. About 60% of the amino acids in the body proteins can easily be converted into carbohydrates and another 40% have chemical configuration that make the conversion into carbohydrates difficult.

[32] Normally, gastric juice is secreted during interdigestive period in between the meals. This gastric juice is nonoxyntic type or mucus only. When an individual is under emotional stimuli, that will lead to the increase of interdigestive secretion around 50 ml or more per hour. Emaciation of the body occurs in the long run of the course of the illness.

[33] It is mentioned in Ayurveda literatures, Udvartana line of the treatment is responsible for the Medas and Kaphahara effect in the body. When an individual is exposed to Udvartana more frequently, that may lead to the rapid depletion of the subcutaneous fat in the body.

[34] As per fundamentals of Ayurveda, frequent bathing is a kind of Svedana therapy. Frequent hot water bathing is responsible for the peripheral vasodilatation and the person develop increased sweating from the body as well as fat mobilisation. This may lead to the shrinkage of intravascular compartment.

[35] People with Vataja constitution, are usually having lean physique. Ectomorphic individuals usually will have lean body.

[36] In the process of aging, the person may have nutritional deficiency – sequential loss of carbohydrate, fats and proteins can be observed in due course of time.

[37] As per Ayurveda fundamentals, Vata Dosha will be abnormally vitiated in chronic debilitating illnesses. Emaciation is one of the clinical features observed in chronic illness. This can be attributable to sequential loss of carbohydrates, fats and proteins. Muscle wasting is a common sequel of nearly all acute and many chronic diseases.

[38] When an individual is having excess anger, that will lead to the activation of sympathetic nervous system. When this autonomous nervous system is activated, that will lead to the tachycardia, fight and flight response etc. It will lead to the increased basal metabolic rate (BMR) and thus, the person may develop emaciation of the body.

[39] When the person is having emaciation, that will be associated with profound loss of carbohydrate, fats and proteins. When the person performs exercise, there is no energy reserve to supplement the energy loss owing to decrease in adipose tissue in the subcutaneous tissue, abdomen, breasts and buttocks in particular. That is the reason, the person will have intolerance to exercise, hunger and thirst.

[40] As the person is having deficient fat reserve from the subcutaneous tissue, the person is not having the ability to withstand the extremes of the temperature variation.

[41] When the individual indulges in sexual intercourse, it increases basal metabolic rate. As there is shortage of fat in the body, the person may not have sufficient replenishment of energy loss. This may be the reason for the intolerance to sexual intercourse.

[42] This Lakshana (clinical feature) is observed in case of Medas Kshaya. When there is rapid depletion of adipose tissue, the person may have fatty degeneration of the liver. This will lead to the cirrhosis of the liver, which in turn leads to the portal hypertension and splenomegaly is the outcome of portal hypertension.

[43] Depletion of the adipose tissues is seen in subcutaneous tissue, abdomen, breasts and buttocks.

- *Gulma* (chronic localised abdominal swelling[44])
- *Arshas* (hemorrhoids)[45]
- *Udara* (generalised abdominal swelling[46])
- *Grahani Roga* (disease afflicting *Grahani*)

## Key summary of the chapter

**मेदोमांसा तिवृद्धत्वाचलस्फिगुदरस्तनः। अवथोपचयोत्साहो नरोऽतिस्थूल उच्यते॥9॥**

Ca.Su. – 21/9

- The person will have pendulous movement of buttocks, abdomen and breasts because of the excess accumulation of fats in these areas. Because of the excess accumulation, the person is unable to do any of the activities.
- Atisthula Karana are 8 in number. They are Atisampurana; Guru, Shita, Madhura, Snigdha Upayoga; Avyavama; Avyavaya; Achintana; Harshanityatva; Bijasvabhava
- Atisthula Dosha Lakshana are 8 in number. They are Ayusho Hrasa; Javoparodha; Krichravyavayata, Dorgandhya, Daurbalya; Svedabadha, Kshudatimatra and Pipasa Atiyoga.

**शुष्कस्फिगुदरग्रीवो धमनीजालसन्ततः। त्वगस्थिशेषोऽतिकृशः स्थूलपर्वा नरो मतः॥15॥**

Ca.Su. – 21/15

- Atikarshya person is having atrophied buttocks, abdomen and neck; have abundant visible veins in the body; Tvak and Asthi are seen in the bod and large visible joints.
- Atikarshya Nidana mentioned in Charaka Samhita are Rukshanna Pana Seva; Langhana, Pramitashana; Kriya Atiyoga, Bhi, Shoka; Vega Vinigraha; Nidra Vinigraha; Rukshasya Udvartana; Snanasya Abhyasa; Prakriti and Jara are general Nidana mentioned which may be responsible for the manifestation of Karshya.
- Karshya Lakshana as mentioned by Charaka are inability to tolerate excess amount of Vyayama, Kshut, Pipasa, Amaya, Aushadha; inability to withstand aftereffects of excess coldness, warmth, sexual intercourse; splenic enlargmennt;; cough; depleted body tissues, breathing discomfort, abdominal swelling; disease afflicting Grahani.

## Self-Assessment: Questions for Reviews

### Long essays

- Enumerate Ashta Nindita Purusha and explain Explain Atisthula and Atikrisha Purusha in detail
- Define Atisthula and Atikrisha Purusha, explain Atisthula Karana and Atisthula Dosha and Karshya Nidana, Lakshana in detail

### Short essays

- Define Atisthula and explain Atisthaulya Karana and Lakshana
- Explain Medoroga in detail
- Define Karshya. Explain the Nidana and Lakshana of Karshya.
- Explain the Nidana, Samprapti and Lakshana of Karshya
- What are the Nidana and Lakshana of Karshya

### MCQs

**1. Karshya is**

a. Mamsavaha Sroto Vikara;
b. Medovaha Sroto Vikara;
c. Shukravaha Srotovikara;
d. Raktavaha Srotovikara

*Answer*: (b)

**2. Which of the following is not considered to be Upadrava of Karshya?**

a. Grahani; b. Arshas;
c. Pliha; d. Prameha

*Answer*: (d)

**3. Frequent Udvartana, a line of treatment will lead to .....**

a. Kaphahara; b. Medohara;
c. Both a and b; d. None of the above

*Answer*: (c)

**4. Which of the following is Apatarpanajanya Vikara?**

a. Sthaulya; b. Karshya;
c. Prameha; d. Prameha Pidaka

*Answer*: (b)

**5. What should be the value of BMI (Body Mass Index) to diagnose undernourishment?**

a. 22 and below; b. 15 and below;
c. 18 and below; d. 26 and below

*Answer*: (c)

**6. Atisthula Dosha are ..............in number.**

a. 7; b. 8;
c. 4; d. 2

*Answer*: (b)

**7. As per Charaka, Atisthula Karana are ...............in number.**

a. 7; b. 8;
c. 4; d. Innumerable

*Answer*: (b)

---

[44] This is attributable to malignant tumour of the abdomen. Cancer cachexia is the sequel in the patients of malignant diseases.

[45] This is attributable to the consequence of portal hypertension where backflow of the blood in the superior mesenteric vein is present.

[46] This is attributable to portal hypertension, where ascites, accumulation of fluid in peritoneal cavity is observed.

8. **The term Medoroga is coined by**
   - a. Charaka;
   - b. Sushruta;
   - c. Vagbhata;
   - d. Madhavakara

*Answer*: (d)

9. **As per Sushruta, Sthualya is categorised under**
   - a. Adhyatmika Vikara;
   - b. Adhibhautika Vikara;
   - c. Adhidaivika Vikara;
   - d. Both a and b

*Answer*: (a)

10. **As per Sushruta, Sthaulya is categorised under**
    - a. Adibala Pravritta Vikara;
    - b. Janmabala Pravritta Vikara;
    - c. Doshabala Pravritta Vikara;
    - d. Daivabala Pravritta Vikara

*Answer*: (c)

## Chapter resources

- Charaka Samhita, Sutra Sthana – 21st chapter, Ashtou Ninditiya Adhyaya
- Madhava Nidana, 34th chapter – Medoroga Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.medindia.net
- Savill's system of clinical medicine revised and edited by E C Warner, 14th edition, CBS Publishers and Distributors, New Delhi, 1998

***

CHAPTER

37

Double chin
Feeling very tired
Breath-lessness
Snoring
Increased sweating
Joint pain
Difficulty in sleeping
Reduced sex drive
Extra fat around waist
High cholestrol

# Obesity

## Learning Objectives

- ⇨ To know the clinical features of obesity
- ⇨ To perform the necessary physical examination of patient of obesity
- ⇨ To order and interpret the necessary laboratory investigations of obesity
- ⇨ To know the differential diagnosis of obesity

## Introduction

Obesity is excess body fat accumulation that imparts health risk; a body weight of 20% excess over ideal weight, age, gender and height is considered as health risk.

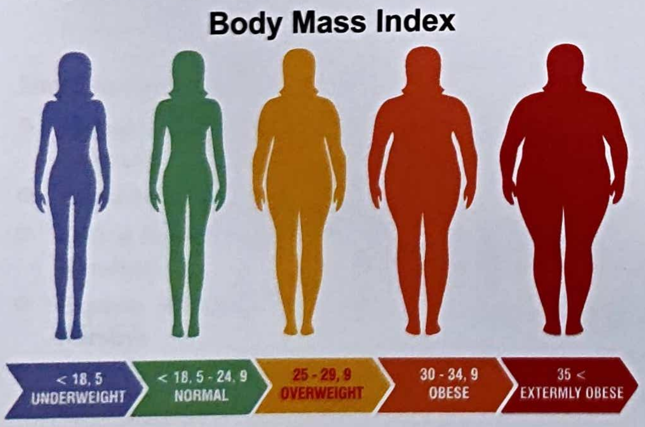

Body Mass Index
< 18, 5
UNDERWEIGHT
< 18, 5 - 24, 9
NORMAL
25 - 29, 9
OVERWEIGHT
30 - 34, 9
OBESE
35 <
EXTERMLY OBESE

**Figure 160:** Gradings of BMI

### Etiology of obesity

This occurs when caloric input is exceeding the caloric utilization. In other words, chronic imbalance between energy intake and energy utilization, where in amount of energy intake exceeds amount of energy utilization.

- Inadequate pushing of oneself away from the dining table causing overeating
- Insufficient pushing of oneself out of the chair leading to inactivity and sedentary lifestyle
- Genetic predisposition to develop obesity
- Diets largely derived from carbohydrates and fats than protein rich diet
- Secondary obesity which follows a number of underlying diseases such as hypothyroidism, Cushing's syndrome, insulinoma and hypothalamic disorders

**Sequelae of obesity:** Marked obesity is a serious health hazard, predispose to a number of clinical disorders.

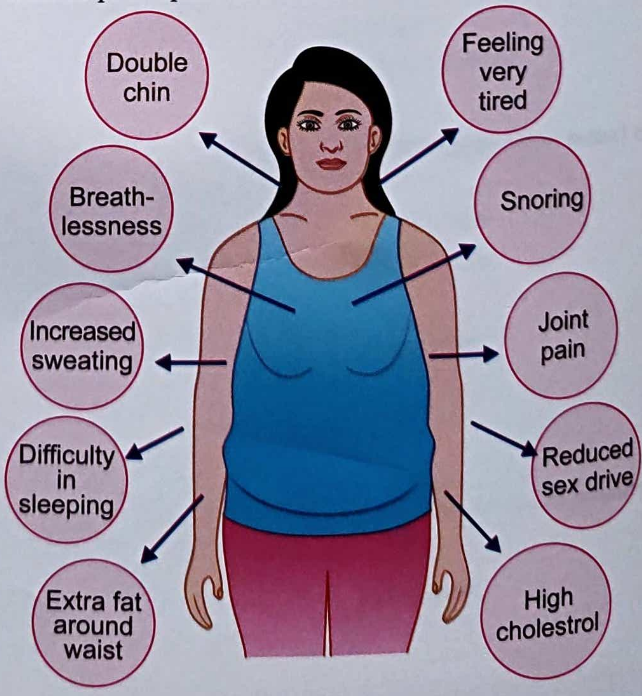

Double chin
Feeling very tired
Breath-lessness
Snoring
Increased sweating
Joint pain
Difficulty in sleeping
Reduced sex drive
Extra fat around waist
High cholestrol

**Figure 161:** Clinical features of obesity

- **Pathological changes:** This is associated with increased adipose stores in the subcutaneous tissues, skeletal muscles, internal organs such as kidneys, heart, liver and omentum. Fatty liver is also most common in obese individuals.
- **Metabolic changes:**
    - **Hyperinsulinonaemia:** Increase in insulin secretion is a feature of obesity. Many obese individuals exhibit hyperglycemia or frank diabetes despite hyperinsulinaemia. This is due to a state of insulin resistance consequent to tissue insensitivity.
    - **Non-insulin dependent diabetes:** There is a strong association of non-insulin dependent diabetes mellitus with obesity. Obesity often exacerbates the diabetic state and in many cases weight reduction often leads to amelioration of diabetes.
    - **Hypertension:** A strong association between hypertension and obesity is observed which is due to increased blood volume. Weight reduction leads to significant reduction in systolic blood pressure.
    - **Hyperlipoproteinemia:** The plasma cholesterol circulates in the blood as low density lipoprotein (LDL) containing most of the circulating triglycerides. Obesity is strongly associated with VLDL and mildly with LDL. Total blood cholesterol levels are also elevated in obesity.
    - **Atherosclerosis:** Obesity predisposes to development of atherosclerosis.
    - **Coronary artery disease and stroke:** As a result of atherosclerosis and hypertension, there is increased risk of myocardial infarction and stroke in obese individuals
    - **Cholelithiasis:** There is 6 times higher incidence of gall stones in obese individuals, mainly due to increased total body cholesterol.
    - **Osteoarthritis:** These individuals are more prone to develop degenerative joint disease due to wear and tear following trauma to joints as a result of large body weight.
    - **Cancer:** certain cancers such as of endometrium and breast seem to be related to obesity. Particularly implicated are the diets derived from animal fats and meats. However, definite evidence in support of the role of diet in cancer is lacking.

## Complications of obesity

- Metabolic syndrome
- Diabetes mellitus
- Cardiovascular disease
- Nonalcoholic hepatitis
- Gall bladder disease
- Gastrooesophageal reflux disease
- Obstructive sleep apnoea
- Reproductive system diseases
- Cancer
- Osteoarthritis
- Social and psychological problems

Diagnosis is done by analysis of BMI and waist circumference. BMI is calculated by the formula W (kg)/h2 (m). The normal BMI ranges between 18 to 25. If the BMI is more than 25, then it is indicative of overweight and if BMI crosses 30, then the diagnosis of obesity is made and if the BMI crosses 40, then hyperobesity is diagnosed. As far as waist circumference is concerned, Asian Indian men will have waist circumference > 78 cm and Asian Indian women will have waist circumference of > 72 cm may indicate obesity.

## Key summary of the chapter

- Obesity is excess body fat accumulation that imparts health risk; a body weight of 20% excess over ideal weight, age, gender and height is considered as health risk.
- Etiology of obesity: This occurs when caloric input is exceeding the caloric utilization. In other words, chronic imbalance between energy intake and energy utilization, where in amount of energy intake exceeds amount of energy utilization.
- Complications of obesity are as follow: metabolic syndrome, diabetes mellitus, cardiovascular disease, nonalcoholic hepatitis, gall bladder disease, gastro oesophageal reflux disease, obstructive sleep apnoea, reproductive system diseases, cancer, osteoarthritis, social and psychological disturbances.
- Diagnosis is done by analysis of BMI and waist circumference.

## Self-Assessment: Questions for Review

### Short essay questions

- Describe obesity
- Define obesity, write the causes and clinical features and complications of obesity.
- Describe how to make the diagnosis of obesity

### MCQs

**1. BMI is being calculated by the formula**

a. W (gm)/h2 (cms);

b. W (kg)/h2 (cms);

c. W2 (Kg)/h (m);

d. W (kg)/h2 (m)

*Answer*: (d)

**2. The term BMI in the context of diagnosis of obesity refers to**

a. Body Mass Index;

b. Bone Mass Index;

c. Body Muscle Index;

d. Bone Marrow Index

*Answer*: (a)

**3. The diagnosis of obesity is made when the BMI crosses**

a. 25; b. 40;

c. 30; d. 18

*Answer*: (c)

**4. The normal range of BMI in human being is**

a. 18 to 25; b. 15 to 20;

c. 25 to 30; d. 30 to 40

*Answer*: (a)

**5. Mr. X is visiting one obesity clinic for normal routine checkup. The doctor calculates his BMI as 28. As per the assessment of BMI calculation formula, Mr. X is having**

a. Undernutrition; b. Obesity;

c. Overweight; d. Hyperobesity

*Answer*: (c)

***

## Chapter resources

- Physical diagnosis – a textbook of symptoms and physical signs by Rustom Jal Vakil and Aspi F Golwalla 13th edition, MPP (Media Promoters and Publishers) Pvt. Ltd, Mumbai, 2010
- A manual on clinical surgery by S Das, 4th edition, Published by S Das, Calcutta, 1998
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.uncnews.unc.edu
- www.dreamstime.com

CHAPTER

38

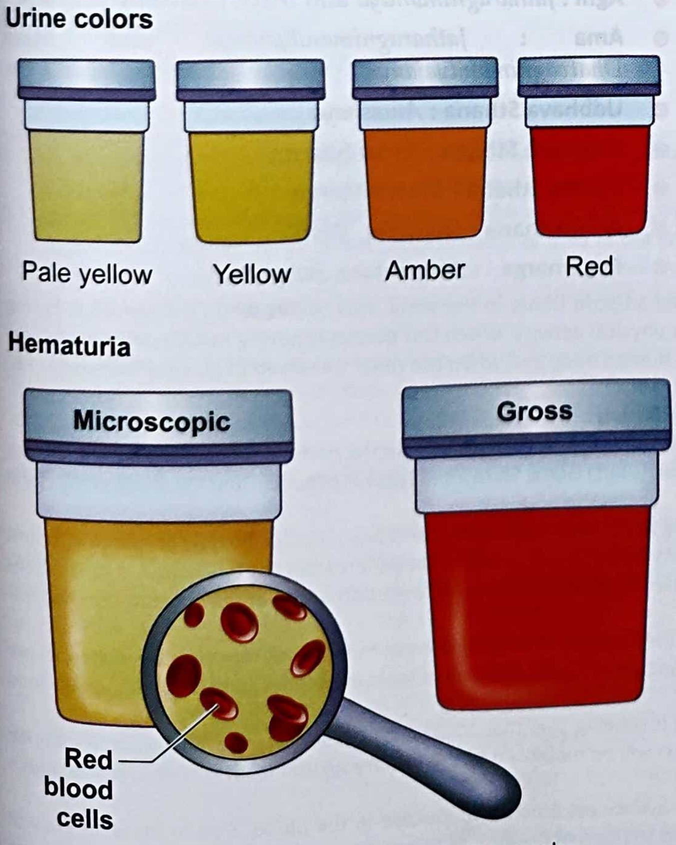
Hematuria
Microscopic
Gross
Red blood cells

# Prameha

**Learning Objectives**

- ⇨ To learn the concept of Prameha
- ⇨ To learn about the Pratyatma Lakshana (cardinal feature) of Prameha
- ⇨ To learn the Nidana and Samprapti of Prameha mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To enlist the types of Prameha
- ⇨ To learn about Purvarupa, Vishishsta Lakshana, Upadrava and Sadhyasadhyata of Prameha

## Introduction


Urine colors

Hematuria

**Figure 162:** Pratyatma Lakshana of Prameha

*Prameha* is a spectrum of diseases which involve primarily *Medovaha Srotas* along with the involvement of *Mutravaha Srotas*. This is *characterised* by *Prabhuta Mutrata* (increased quantity of urine) and *Avila Mutrata* (turbidity of urine). All *Ayurveda* literatures described 20 types of *Prameha*. *Sushruta* has classified this disease in *Adibala Pravritta Vikara* of *Adhyatmika Vikara*. As per *Charaka*, *Prameha* is considered to be *Anushangi Vikara* i.e. the disease which will more closely attached to the individual. In this context, *Prabhuta Mutrata* is self explanatory where in the amount of urine passed in either one frequency or in 24 hours is increased. The term Avila *Mutrata* refers to turbid urine. This is quite different from simple water as this fluid contains several other metabolites such as urea, uric acid, creatinine, pus cells, red blood cells, casts and crystals etc. In case of abnormal conditions, urine contains sugar, proteins, ketone bodies, red blood cells, bile salts, bile pigments etc. The nature of *Avilatva* (turbidity) differs in different disease manifestations. Thus, *Prameha* is the spectrum of diseases where in person will have passage of excess amount of turbid urine. *Amashaya* is the *Udbhava Sthana* of the disease, *Sanchara Sthana* is *Sarvasharira* and *Vyakta Sthana* is *Mutra*. *Atipravritti* is the type of *Srotodushti* observed in the whole progression of the disease.

## Nirukti

**प्रकर्षेण प्रभूतं प्रचुरं वारंवारं वा मूत्रत्यागं करोति यस्मिन् रोगे स प्रमेहः॥** मा.नि. - 33/1, मधु

*Prameha* is considered to be associated with increased frequency of micturition. This could in terms of increased flow at a time or increased frequency at a time or increase in overall output in a day.

## Nidana of Prameha

आस्यासुखं स्वप्नसुखं दधीनि ग्राम्यौदकानूपरसाः पयांसि।
नवान्नपानं गुडवैकृतं च प्रमेहहेतुः कफकृच्च सर्वम्॥4॥
Ca.Ci. – 6/4

- Performing the activities in sitting posture or comfortable posture most of the times[1]
- Excess sleeping in a day[2]
- Excess intake of curds
- Excess intake of meat and meat soup of domestic, marshy and aquatic animals such as chicken, pork and fish
- Excess intake of milk and milk products
- Excess intake of freshly harvested food grains[3]
- Excess intake of freshly prepared alcohol[4]
- Excess intake of jaggery and products of jaggery
- Excess intake of substances which lead to the vitiation of *Kapha Dosha*[5]

## Samprapti[6] of Prameha

मेदश्च मांसं च शरीरजं च क्लेदं कफो बस्तिगतं प्रदूष्य।
करोति मेहान् समुदीर्णमुष्णै- स्तानेव पित्तं परिदूष्य चापि॥5॥
क्षीणेषु दोषेष्ववकृष्य बस्ती धातून् प्रमेहाननिलः करोति।
दोषो हि वस्तिं समुपेत्य मूत्रं संदूष्य मेहाञ्जनयेद्यथास्वम्॥6॥
Ca.Ci. – 6/5,6

## Dosha and Dushya of Prameha

कफः सपित्तः पवनश्च दोपा मेदोस्त्रशुक्राम्बुवसालसीकाः।
मज्जा रसोजः पिशितं च दूष्याः प्रमेहिणां विंशतिरेव मेहाः॥8॥
Ca.Ci. – 6/8

- Due to the exposure to etiological factors, *Medas, Mamsa* and *Kleda* of the body will be moved to *Basti* by vitiated *Kapha Dosha.*
- Due to the increase of *Ushna Guna* in the body by the exposure to *Pitta* vitiating factors, *Medas, Mamsa* and *Kleda* of the body will be moved to *Basti* by vitiated *Pitta Dosha*
- Due to the decrease of other *Dosha, Vata Dosha* will get vitiated and this vitiated *Vata Dosha* will move the abnormal *Dhatu* to *Basti* region leading to the manifestation of *Vataja Prameha.*
- *Medas, Rakta, Mamsa, Ambu, Vasa, Lasika, Majja, Rasa, Ojas, Shukra* are the other components of the body get vitiated in the patient of *Prameha* disease.

## Samprapti Ghataka

- **Dosha :** *Kapha Pradhana*, association of *Pitta* or *Vata* can be seen in due course of time
- **Dushya :** *Rasa, Rakta, Mamsa, Medas, Majja, Shukra, Ojas, Vasa, Ambu, Lasika, Mutra* in different stages of the illness
- **Srotas:** *Medovaha* and *Mutravaha Srotas*
- **Srotodushti Prakara :** *Atipravritti*
- **Agni :** *Jatharagnimandya* and *Medo Dhatvangnimandya*
- **Ama :** *Jatharagnimandyajanya* and *Medo Dhatvagnimandyajanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Mutra Marga*
- **Adhishthana :** *Sharirika, Basti*
- **Rogamarga :** *Abhyantara, Bahya*

---

[1] This implies the person will have reduced muscle mass and increased adipose tissue in the body. This occurs when the person is having frequent consumption of carbohydrate rich diet and he is doing less physical activity. When the person is having insulin deficiency, sugar present in the blood circulation cannot be utilised by the cells of the human body and when the renal threshold of glucose increases >180 mg/dl will lead to the appearance of sugar in the urine.

[2] Excess amount of sleep will have a similar action as that of sedentary lifestyle.

[3] All the above said etiological factors are known to be responsible for the vitiation of Kapha Dosha in the body as most of the substances are having Madhura Rasa (sweet taste), Guru (heavy to digest), Snigdha (unctuous) Guna, Shita Virya (cold in potency) and Madhura Vipaka (end product of digestion is Madhura).

[4] As per Ayurveda literatures, Madya (intoxicating beverages) are having Amla Rasa, Ushna Virya and Amla Vipaka. Freshly prepared alcoholic beverages likely to increase the Kapha Dosha in the body. Chronic calcifying pancreatitis and acute pancreatitis are the serious complications seen in the patients of chronic alcoholism. Thus, the person may show disturbances of insulin secretion and that may lead to the manifestation of diabetes mellitus.

[5] All the above said etiological factors are known to be responsible for the vitiation of Kapha Dosha in the body as most of the substances are having Madhura Rasa (sweet taste), Guru (heavy to digest), Snigdha (unctuous) Guna, Shita Virya (cold in potency) and Madhura Vipaka (end product of digestion is Madhura).

[6] When an individual is suffering from Prameha spectrum of diseases, it is being said that Medas (fat tissue), Mamsa (muscular tissue) and Shariraja Kleda (in the present context, fluid of abnormal constituents) will be mobilised to the urinary system leading to the manifestation of clinical features of Prameha.

When a person is suffering from diabetes mellitus, the person will have excess amount of glucose in the blood. Due to the deficiency of insulin, the glucose cannot be utilised by the body parts. This will lead to the mobilisation of stored fat into the circulation, mobilisation of proteins stored in the muscular tissue, and intermediary metabolic products of fat and proteins can be observed in the blood. These intermediary metabolic products can be taken as abnormal Kleda in the body.

- **Vyadhi Svabhava :** *Chirakari*
- **Sadhyasadhyata :** *Yapya* to *Asadhya*

## Purvarupa of Prameha

स्वेदोऽन्धः शिथिलाङ्गता च शय्यासनस्वप्नसुखे रतिश्च।
नेत्रजिह्वाश्रवणोपदेहो घनाङ्गता केशनखातिवृद्धिः॥13॥
शीतप्रियत्वं गलतालुशोषो माधुर्यमास्ये करपाददाहः।
भविष्यतो मेहगदस्य रूपं मूत्रेऽभिधावन्ति पिपीलिकाश्च॥ 14॥
Ca.Ci. – 6/13,14

दन्तादीनां मलाढ्यत्वं प्राग्रूपं पाणिपादयोः।
दाहश्चिकणता देहे तृट् स्वाद्वास्यं च जायते॥5॥
Ma.Ni. – 33/5

त्रयस्तु खलु दोषाः प्रकुपिताः प्रमेहानभिनिर्वर्तयिष्यन्त इमानि पूर्वरूपाणि दर्शयन्ति तद्यथा - जटिलीभावं केशेषु, माधुर्यमास्यस्य, करपादयोः सुप्तता- दाहो, मुखतालुकण्ठशोषं, पिपासाम्, आलस्यं, मलं काये, कायच्छिद्रेषूपदेहं परिदाहं सुप्ततां चाङ्गेषु, षट्पदपिपीलिकाभिश्च शरीरमूत्राभिसरणं, मूत्रे च मूत्रदोषान् वित्रं शरीरगन्धं, निद्रां तन्द्रां च सर्वकालमिति॥47॥
Ca.Ni. – 4/47

- Excess sweating[7]
- Foul smell from body parts[8]
- Looseness of the body parts[9]
- Liking towards sleeping for long time
- Liking towards sitting for long time[10]
- Coating over the *Hridaya* region[11]
- Coating over the eyes[12]
- Coating over the tongue[13]
- Accumulation of wax in the ears[14]
- Hard body parts[15]
- Excess growth of scalp hairs[16]
- Excess growth of nails
- Affinity towards consumption of cold substances
- Dryness of the throat
- Dryness of the palate[17]
- Sweetish taste in the mouth
- Burning sensation and numbness in the palms and soles[18]
- Appearance of the ants near the person does micturition[19]
- Sliminess of the body parts
- Thirst[20]
- Accumulation of *Mala* (tartar) over the teeth[21]
- Tangled hair
- Laziness[22]
- Excess accumulation of *Mala* in the body and orifices[23]
- Drowsiness all the time
- Increased sleep most of the times[24]

## Pratyatma Lakshana of Prameha

सामान्यं लक्षणं तेषां प्रभूताविलमूत्रता। Ma.Ni. – 33/6

- **Prabhuta Mutrata**[25] – Increased quantity of urine at a time or increased frequency of micturition or both

---

[7] As per Ayurveda literature, Sveda is the Mala of Medo Dhatu. Thus, when the person is suffering from Prameha, he will have profuse sweating which is an outcome of abnormal Medo Dhatu formation.

[8] When the person is having sweating, most of the water is going to get reabsorbed. It contains urea, lactic acid and potassium ions which are highly concentrated. As far as the concentration of urea in the sweat and plasma is concerned, concentration of urea in the sweat is twice than that of plasma. That may be the reason for the foul smell from the body parts.

[9] Looseness of the body parts is attributable to the excess loss of adipose and muscular tissue.

[10] This can be attributable to the sedentary lifestyle.

[11] This can be attributable to the deposition of circulating fat in the coronary blood vessels.

[12] This can be attributable to diabetic nephropathy.

[13] This can be attributable to autonomic nervous dysfunction. Due to this mechanism the person will have poor salivary secretion, which could be major reason for the development of coating over the tongue.

[14] This is attributable to the increased formation of Mala (waste products) in the body. Wax is considered to be one of Kha-mala which is the biproduct of Mamsa Dhatvagni.

[15] This is attributable to the reduced adipose and muscular tissue in the suffering individual.

[16] This can be attributable to the excess and rapid overgrowth of Kesha which is the biproduct of Asthi Dhatvagni function.

[17] This can be attributable to excess fluid loss from the body which is indicative of hypovolemia.

[18] This can be attributable to neurological dysfunction.

[19] This can be attributable to glycosuria i.e. presence of glucose in the urine. When an individual suffering from diabetes mellitus, ants will appear at the site of micturition.

[20] This is attributable to hypovolemia which is the sequel of polyuria

[21] This is attributable to increased proliferation of microorganisms which is a sequel of poor oral hygiene.

[22] This is attributable to sedentary lifestyle.

[23] This can be attributable to the increased proliferation of microorganisms, in the oral cavity as well as the areas of natural orifices.

[24] This is attributable to the increase of Kapha Dosha in the body.

[25] It is a well known fact that urine is passed 7 to 8 times in 24 hours. In one frequency, the amount of urine passed is around 250 ml. In other words to say, on an average, a healthy individual will pass 1,200 to 1,500 ml of urine in 24 hours. If the person passes more than 3,000 ml in 24 hours, that can be termed as polyuria.

- **Avila Mutrata**[26] – passage of turbid urine

**Sankhya Samprapti of Prameha:** 20 types

### Kaphaja Prameha – 10

1. *Udaka Meha*
2. *Ikshumeha*
3. *Sandra Meha*
4. *Sura Meha*
5. *Shukla Meha*
6. *Shukra Meha*
7. *Sikata Meha*
8. *Shita Meha*
9. *Shanaih Meha*
10. *Lala Meha*

### Pittaja Prameha – 6

1. *Haridra Meha*
2. *Manjishtha Meha*
3. *Kala Meha*
4. *Kshara Meha*
5. *Nila Meha*
6. *Rakta Meha*

### Vataja Prameha – 4

1. *Vasa Meha*
2. *Majja Meha*
3. *Hasti Meha*
4. *Kshoudra Meha*

## Kaphaja Prameha

**अच्छं बहु सितं शीतं निर्गन्धमुदकोपमम्॥7॥**
**मेहत्युदकमेहेन किंचिदाविलपिच्छिलम्।**
**इक्षो रसमिवात्यर्थं मधुरं चेधुमेहतः॥8॥**
**सान्द्रीभवेत् पर्युषितं सान्द्रमेहेन मेहति।**
**सुरामेही सुरातुल्यमुपर्यच्छमधो धनम्॥9॥**
**संहृष्टरोमा पिष्टेन पिष्टवद्बहुलं सितम्।**
**शुक्राभं शुक्रमिश्रं वा शुक्रमेही प्रमेहति॥10॥**
**मूर्तीणून सिकतामेही सिकतारूपिणो मलान्।**
**शीतमेही सुबहुशो मधुरं भृशशीतलम्॥11॥**
**शनैः शनैः शनैर्मेही मन्दं मन्दं प्रमेहति।**
**लालातन्तुयुतं मूत्रं लालामेहेन पिच्छिलम्॥12॥** Ma.Ni. – 33/7-12

- **Udakameha** – Clear and transparent urine, increased amount of urine formed, colourless, cold and without any smell. The urine resembles water with little turbidity and sliminess.
- **Ikshumeha** – Excess sweetishness, cold, slimy, turbid urine. The urine resembles sugar cane juice.
- **Sandra Meha** – When urine is collected in a container, after sometime, the urine becomes thick and sticky with some amount of sedimentation formed at the bottom of the urine sample
- **Sura Meha** – When urine is collected in a container for sometime, one can observe formation of the sediment at the bottom of the container
- **Sita Meha or Shukla Meha** – Urine appears white in appearance as if the white powder is mixed to the urine. This is associated with horripulation.
- **Shukra Meha** – When a person passes urine, it appears to have mixed with *Shukra* (semen)
- **Shita Meha** – When the person passes urine, it will be excessively sweet, increased amount of urine is passed and it will be cold.
- **Sikata Meha** – When the person passes urine, he will pass small sand like particles in the urine.
- **Shanairmeha** – When the person passes urine, he will pass little quantity of urine with more frequency.
- **Lala Meha** – When the person passes urine, it will be thready, mucoid, slimy urine and is similar to consistency of saliva.

## Piṭtaja Prameha

**गन्धवर्णरसस्पर्शैः क्षारेण क्षारतोयवत्।**
**नीलमेहेन नीलाभं कालमेही मसीनिभम्॥13॥**
**हारिद्रमेही कटुकं हरिद्रासंनिभं दुहत्।**
**वित्रं माजिष्ठमेहेन मञ्जिष्ठासलिलोपमम्॥14॥**
**विस्त्रमुष्णं सलवणं रक्ताभं रक्तमेहतः।** Ma.Ni. – 33/13-15

- **Ksharameha** – The odour, colour, taste, quality and texture of urine resemble to a *Kshara* is termed as *Ksharameha.*
- **Nilameha** – The colour of urine will be blue in *Nilaheha.*
- **Kala Meha** – The colour of urine will black in *Kala Meha.*
- **Haridra Meha** – The colour of urine is yellow like turmeric powder mixed in water. It is pungent in nature and burning sensation during micturition.
- **Manjishtha Meha** – The urine of the patient resembles the decoction of *Manjishtha* (Rubia cordifolia) i.e. bright pink in colour. It also emits foul smell and amount of urine passed will be more when compared to other varieties of *Prameha.*
- **Rakta Meha** – The urine of the patient resembles the colour of blood. This is emiting foul smell, salty and hot in touch.

---

[26] It is a well known fact that urine is not just simple water portion. It contains several other components which are being excreted in the urine from various metabolic processes of the body such as proteins or glucose or creatinine or red blood cells or white blood cells etc. If any of onents in the urine is increased, that will lead to a mechanism called Avila Mutrata.

## Vataja Prameha

वसामेही वसामिश्रं वसानं मूत्रयेन्मुहुः॥1 5॥
मज्जाभं मज्जमिश्रं वा मजमेही मुहुर्मुहुः।
कषायं मधुरं रूक्षं क्षौद्रमेहं वदेदुधः॥1 6॥
हस्ती मत्त इवाजत्रं मूत्रं वेगविवर्जितम्॥
सलसीकं विवद्धं च हस्तिमेही प्रमेहति॥1 7॥ Ma.Ni. – 33/15-17

1. **Vasa Meha**
   - The urine of the patient gets mixed with oily like substance called *Vasa* and gets excreted frequently in large quantity.
2. **Majja Meha**
   - The urine of the patient gets mixed with *Majja* and this will be eliminated through urine.
3. **Hasti Meha**
   - The frequency and volume of urine is profound that it resembles the urine of elephant. The consistency of the fluid is like *Lasika.*
   - This is manifested in an individual due to the dominance of *Vata Dosha.*
4. **Madhumeha or Kshoudra Meha**
   - The urine of the patient will have *Kashaya* and *Madhura Rasa* in *Mutra.*
   - *Ojas* will be excreted in this disease. The urine will be thick, turbid and honey like sweet.

## Upadrava[27] of Prameha

### Upadrava of Kaphaja Prameha:

अविपाको रुचिश्छर्दिर्निद्रा कासः सपीनसः।
उपद्रवाः प्रजायन्ते मेहानां कफजन्मनाम्॥1 8॥ Ma.Ni. – 33/18

- Impaired digestion[28]
- Tastelessness[29]
- Vomiting[30]
- Excess sleep[31]
- Cough[32]
- Running nose

### Upadrava of Pittaja Prameha

वस्तिमेहनयोस्तोदो मुष्कावदरणं ज्वरः।
दाहस्तृष्णाऽम्लिका मूर्च्छा विभेदः पित्तजन्मनाम्॥1 9॥

Ma.Ni. – 33/19

- Pricking type of pain in the *Basti* (lower abdomen) region
- Pricking type of pain in the genital region[33]
- Destruction of scrotum
- Raised body temperature[34]
- Burning sensation[35]
- Thirst[36]
- Sour eructations[37]
- Altered state of consciousness[38]

---

GK

[27] When you speak of Upadrava of Prameha, it should involve Medovaha and Mutravaha in particular, it should have Prabhuta and Avila Mutrata. Ayurveda textbooks say the involvement of Medas, Rakta, Shukra, Ambu, Vasa, Lasika, Majja or/ and Mamsa may be observed during the manifestation and progression of the disease. In case of Kaphaja Prameha, involvement of Lasika, Medas, Mamsa may be observed, whereas in Pittaja Prameha, involvement of Yakrit and Pliha along with Rakta may be seen and in Vataja Prameha, involvement of Vasa and Majja can be witnessed.

[28] Avipaka refers to indigestion. It can happen because of either Kapha or Pitta or Vata abnormal functioning. As per fundamentals of Ayurveda, Ushma, Vayu, Kleda, Sneha, Kala and Samayoga are necessary for proper digestion of ingested food. If there is any disturbance in Ushna quality, indigestion may occur as a result of Pitta abnormaity. In case of Vayu abnormal function, the person may have abnormal Prana, Samana or Apana Vata, thereby indigestion may occur as a result of abnormal Vata and when Kleda and Sneha qualities of Ahara Parinamakara Bhava are functioning abnormally, the person may have indigestion due to Kapha Dosha abnormal function.

- When the person is suffering from Kaphaja Prameha, Kleda and Sneha qualities may become abnormal leading to the manifestation of Avipaka.

[29] Presence of tastelessness implies that poor autonomic nervous dysfunction. This may lead to poor functioning of salivary glands. As we are going to have dominance of Kapha Dosha during the progression of the disease, parasympathetic nervous system activation may occur which may lead to tastelessness.

[30] As there is Kapha Dosha dominance, there will be parasympathetic nervous stimulation, there will be excess secretion in alimentary canal, (in mouth, stomach, small intestine). As there is more secretion in the upper alimentary canal, that will lead to more stretching of the alimentary canal, which may lead to appearance of vomiting.

[31] Due to Kapha vitiation, an individual may have parasympathetic activation. Excess indulgence in sleep may be a contributory factor for parasympathetic nervous stimulation.

[32] These are the symptoms observed in upper alimentary canal dysfunction.

[33] These symptoms may indicate the ongoing inflammatory pathology in the affected region.

[34] The presence of raised body temperature implies the ongoing infective pathology in the urinary system.

[35] Burning sensation may occur in the genital region or in skin of the body. Presence of burning sensation during micturition indicates the infective pathology afflicting urethra.

- Burning sensation in the skin implies diabetic neuropathy observed as a complication of diabetes mellitus.

[36] Thirst may be perceived by the patients when there is shrinkage of either intravascular, interstitial or intracellular compartments.

[37] Sour eructations indicate the excess of gastric juice secretion in the stomach.

[38] Altered state of consciousness may be seen in either poor blood circulation to the central nervous system or abnormal proportion of either

- Unformed stools[39]

## Upadrava of Vataja Prameha

वातजानामुदावर्तः कम्पनहलोलताः।
शूलमुन्निद्रता शोषः कासः श्वासश्च जायते॥20॥ Ma.Ni. – 33/20

- *Udavarta*[40] – reverse movement of *Apana vata*
- Involuntary movements[41]
- Stiffness in the chest region[42]
- Desire to take all types of *Rasa* during the food intake
- Pricking type of pain in the abdomen[43]
- Excess sleep
- Dryness of the body parts[44]
- Cough
- Breathing discomfort[45]

## Sadhyasadhyata of Prameha

साध्याः कफोत्था दश, पित्तजाः षट् याप्या, न साध्यः पवनाच्चतुष्कः।
समक्रियत्वाद्विषमक्रियत्वा- न्महात्ययत्वाच्च यथाक्रमं ते॥7॥
Ca.Ci. – 6/7

जातः प्रमेही मधुमेहिनो वा न साध्य उक्तः स हि बीजदोषात्।
ये चापि केचित् कुलजा विकारा भवन्ति तांश्च प्रवदन्त्य साध्यान्॥57॥
Ca.Ci. – 6/57

सपूर्वरूपाः कफपित्तमेहाः क्रमेण ये वातकृताश्च मेहाः।
साध्या न ते, पित्तकृतास्तु याप्याः, साध्यास्तु मेदो यदि न प्रदुष्टम्॥56॥
Ca.Ci. – 6/56

## Asadhya Lakshana of Prameha

यथोक्तोपद्रवाविष्टमतिप्रस्तुतमेव च।
पिडकापीडितं गाढः प्रमेहो हन्ति मानवम्॥21॥
Ma.Ni. – 33/21

- 10 types of *Kaphaja Prameha* are considered as *Sadhya*[46] (easily curable),
- 6 types of *Pittaja Prameha* are considered as *Yapya* (manageable) and
- 4 types of *Vataja Prameha* are considered as *Asadhya* (incurable).
- When the person is suffering from *Prameha* since birth and if there is family history of *Prameha*[47], such disease is considered to be *Asadhya* (incurable).
- When there are *Purvarupa* of *Prameha*[48] are observed in the patients, such type of *Prameha* is considered as *Asadhya* (incurable).
- When there is sequential involvement of *Kapha, Pitta* and *Vata* during the pathogenesis of *Prameha*, such type of *Prameha* is *Asadhya* (incurable)[49] in nature.
- When the person is presented with multiple *Upadrava* (complications) and when the person is presented with *Prameha Pidaka* (carbuncles), such type of *Prameha* is considered to be *Asadhya* in nature.

---

nutrients or electrolytes.

[39] The presence of unformed stools implies poor intestinal absorption and this can be attributable to autonomic dysfunction. The normal nature of stool is having pultaceous consistency. When the individual is having digestive impairment may be in the form of either lack of alimentary secretion or poor motility in alimentary canal or hampered assimilation in the alimentary canal.

[40] When an individual is presented with Udavarta, that may indicate the increase of Ruksha Guna in the body or disturbed Chala Guna in the body. In this occasion, the person will have Vata vitiation limited to Apana Vata i.e. the person may have abnormal movements of urine, faecal matter or menstruation etc.

[41] The presence of involuntary movements refers to the increase of Chala Guna in the body. This may imply the abnormal neurological function.

[42] This may imply the increase of Ruksha Guna in the body. This is indicative of Stabdhata, abnormal function of vitiated Vata Dosha.

[43] Pricking type of pain implies the vitiation of Vata Dosha in the body.

[44] Dryness of body parts implies that the increase of Ruksha Guna of Vata Dosha in the body. It indicates the shrinking of intravascular, interstitial or intracellular compartments.

[45] This indicates the abnormal respiratory function in the body.

[46] The curability and incurability of the illness is based on the nature of Dosha vitiation and line of treatment in general. It is being said that Prameha is a disease of abnormal Kapha Dosha increase. That implies that we have to follow the diet and treatment related to the decrease of Kapha Dosha from the body. In case of Kaphaja Prameha, the nature of Dosha vitiation and line of treatment of Prameha is similar, that is why the Kaphaja Prameha is easily curable. In case of Pittaja Prameha, Snigdha is the quality similar to Pitta and Kapha, that is the reason, Pittaja Prameha is manageable and in case of Vataja Prameha, all the qualities are opposite to the Kapha and treatment in Vataja Prameha will decrease Kapha Dosha and increase Vata Dosha in the body, that is the reason, Vataja Prameha are incurable in nature.

[47] Ayurveda literatures say that Prameha is considered as Adhyatmika Vikara further subcategorised under Adibala Pravritta Vikara wherein the deformity is seen in either Shukra and Shonita of the parents.

[48] For example, Dantadinam Maladhyatva (accumulation of waste products such as excess wax in the ears, excess accumulation of tartar in the teeth etc, leads to the proliferation of infection. Whenever, there is infection, that will lead to the increase of glucose in the body as more energy is required to combat the condition. If the person is not taking care of this symptom, there will be hyperglycemia most of the times. Thus, in this situation, hyperglycemia cannot be checked until and unless we give more attention to personal hygiene.

[49] This may suggest gradual depletion of physical strength (Dhatu Kshaya) of the individual and the person is unable to withstand the potency of the medicine administered to the patient. That is the reason, the disease is considered as Asadhya in nature.

## Key summary of the chapter

- Prameha is a spectrum of diseases which involve Medovaha and Mutravaha Srotas. This is characterised by Prabhuta Mutrata (increased quantity of urine is passed in 24 hours) and Avila Mutrata (turbid urine passed). Amashaya is the Udbhava Sthana of the disease, Sanchara Sthana is Sarvasharira and Vyakta Sthana is Mutra. Atipravritti is the type of Srotodushti observed in this group of diseases.
- **प्रकर्षेण प्रभूतं प्रचुरं वारंवारं वा मूत्रत्यागं करोति यस्मिन् रोगे स प्रमेहः।।** मा.नि. - 33/1, मधु.
- It implies that the frequent passage of either large or small quantity of urine is termed as Prameha.
- Asyasukha (consuming the food liked by oneself frequently without proper control), Svapnasukha (sleeping excessively), Dadhi (curds) etc Kapha provoking foods and drinks will be leading to the vitiation of Kapha Dosha, leading to the manifestation of Prameha. In other words, Prameha manifests in the individuals who are having sedentary lifestyle.
- Prabhuta Mutrata (increased frequency of urine in 24 hours) and Avila Mutrata (passage of turbid urine) are Pratyatma Lakshana (cardinal features) of Prameha.
- 20 types of Prameha [50] are mentioned. 10 types of Kaphaja Prameha, 6 types of Pittaja Prameha and 4 types of Vataja Prameha are mentioned in Ayurveda treatises. Among these 20 types, Kaphaja, Pittaja and Vataja Prameha are considered as Sadhya (curable), Yapya (manageable) and Asadhya (incurable) respectively based on Samakriyatva, Vishamakriyatva and Mahatyayatva. These categories are made on the basis of nature of treatment and status of Dosha vitiation in the progression of the disease.

## Self-Assessment: Questions for Reviews

### Long essay questions

- Define Prameha. Explain the *Nidana,* Samprapti, Purvarupa, Rupa, Bheda, Upadrava and Sadhyasadhyata of Prameha
- Explain the Nidana Panchaka of Prameha in detail.

### Short essay questions

- Explain the Sadhyasdhata of Prameha
- Explain Kaphaja Prameha
- Explain Nidana of Prameha
- Explain Purvarupa of Prameha
- Explain Samprapti and Samprapti Ghataka of Prameha

### Short answers

- Write the definition of Prameha
- Write the Pratyatma Lakshana of Prameha
- Enumerate Kaphaja Prameha
- Enumerate Pittaja Prameha
- Write Purvarupa of Prameha
- Write the Sadhyasadhyata of Prameha
- What is Madhumeha?

### MCQs

**1. Shanairmeha is included in ..........Prameha.**

a. Kaphaja; b. Pittaja;
c. Vataja; d. Sannipataja

*Answer*: (a)

**2. Mahatyayatva is the term used in relation with which of the following type of Prameha?**

a. Vataja;
b. Pittaja;
c. Kaphaja;
d. Not mentioned in Ayurveda textbooks

*Answer*: (a)

**3. The number of Pittaja Prameha is**

a. 10; b. 6;
c. 4; d. 20

*Answer*: (b)

**4. Madhumeha is considered as a type of ................Prameha.**

a. Kaphaja; b. Pittaja;
c. Vataja; d. Sannipataja

*Answer*: (c)

**5. Prabhuta Mutrata is ................of Prameha.**

a. Purvarupa;
b. Nidana;
c. Upadrava;
d. Pratyatma Lakshana

*Answer*: (d)

---

[50] Prameha is Kapha dominant disease by default. Kaphahara line of treatment is advised in case of any type of Prameha as per above said principle. When one administers the Kaphahara line of treatment, that vitiate Vata Dosha in the body. That is the reason, in case of Kaphaja Prameha, the person responds to the Prameha management very easily, in case of Pittaja Prameha, the patient responds to the treatment with difficulty and in case of Vataja Prameha, the person is not responding to the treatment which may vitiate Vata Dosha.

**6. Which one of the following is not included in Kaphaja Prameha?**

a. Sandraprasadameha;
b. Shukrameha;
c. Madhumeha;
d. Ikshumeha

*Answer*: (c)

**7. Which one of the following is included in Pittaja Prameha?**

a. Haridrameha; b. Vasameha;
c. Udakameha; d. Hastimeha

*Answer*: (a)

**8. Which of the following Srotas is involved in Prameha?**

a. Medovaha Srotas; b. Mutravaha Srotas;
c. Both a and b; d. None of the above

*Answer*: (c)

**9. Which of the following Srotodushti Prakara is observed in the patient of Prameha?**

a. Atipravritti; b. Sanga;
c. Sanga and Vimargagamana; d. Siragranthi

*Answer*: (a)

**10. Sankhya Samprapti of Prameha is**

a. 20; b. 10;
c. 6; d. 4

*Answer*: (a)

**11. All are the types of Vataja Prameha except**

a. Vasa Meha; b. Madhumeha;
c. Majja Meha; d. Udaka Meha

*Answer*: (d)

**12. Following types of Prameha are not curable**

a. 10 types of Kaphaja Prameha;
b. 6 types of Pittaja Prameha;
c. 4 types of Vataja Prameha;
d. All of the above

*Answer*: (c)

**13. Urine of Kalameha is like**

a. Jala; b. Sura;
c. Mashi; d. Kshara; e. Haridra

*Answer*: (c)

**14. Types of Prameha Pidaka as per Charaka**

a. 10; b. 7;
c. 8; d. 9

*Answer*: (b)

**15. Kshoudra Meha is the synonym of**

a. Sandrameha; b. Hastimeha;
c. Madhumeha; d. Surameha

*Answer*: (c)

**16. As per Ayurveda literature, the Adhishthana of Prameha is**

a. Vrikka; b. Kloma;
c. Basti; d. Yakrit

*Answer*: (c)

**17. Bahudrava Shleshma Visheshah is the term specifically related to which of the following disease?**

a. Gulma; b. Kushtha;
c. Jvara; d. Prameha

*Answer*: (d)

**18. Amlameha is specifically mentioned by**

a. Charaka;
b. Sushruta;
c. Both Charaka and Sushruta;
d. None of the above

*Answer*: (b)

**19. Yapya Prameha is**

a. Madhumeha; b. Raktameha;
c. Udakameha; d. Lalameha

*Answer*: (b)

**20. Dantadinam Maladhyatva is ......................of Prameha.**

a. Rupa; b. Purvarupa;
c. Upadrava; d. Arishta

*Answer*: (b)

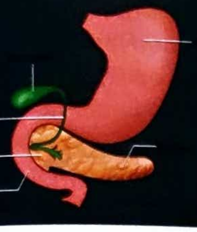
### Chapter resources

- https://my.clevelandclinic.org/health/diseases/15234-hematuria
- Madhava Nidana 33rd chapter – Prameha Nidana
- Charaka Samhita Nidana Sthana – 4th chapter, Prameha Nidana Adhyaya
- Charaka Samhita, Chikitsa Sthana, 6th chapter, Prameha Chikitsa Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

39



# Diabetes Mellitus and Pancreatitis

**Learning Objectives**

- ⇨ To have a brief understanding of diabetes mellitus and pancreatitis
- ⇨ To know about the clinical features of diabetes mellitus, pancreatitis
- ⇨ To know about the complications of diabetes mellitus and pancreatitis
- ⇨ To know about the physical examination to be performed in the patients of diabetes mellitus and pancreatitis
- ⇨ To know about ordering of laboratory investigations to be performed in above mentioned diseases and interpret the results
- ⇨ To know about pancreatitis induced diabetes mellitus (fibrocalculous pancreatic diabetes mellitus)

## Diabetes Mellitus

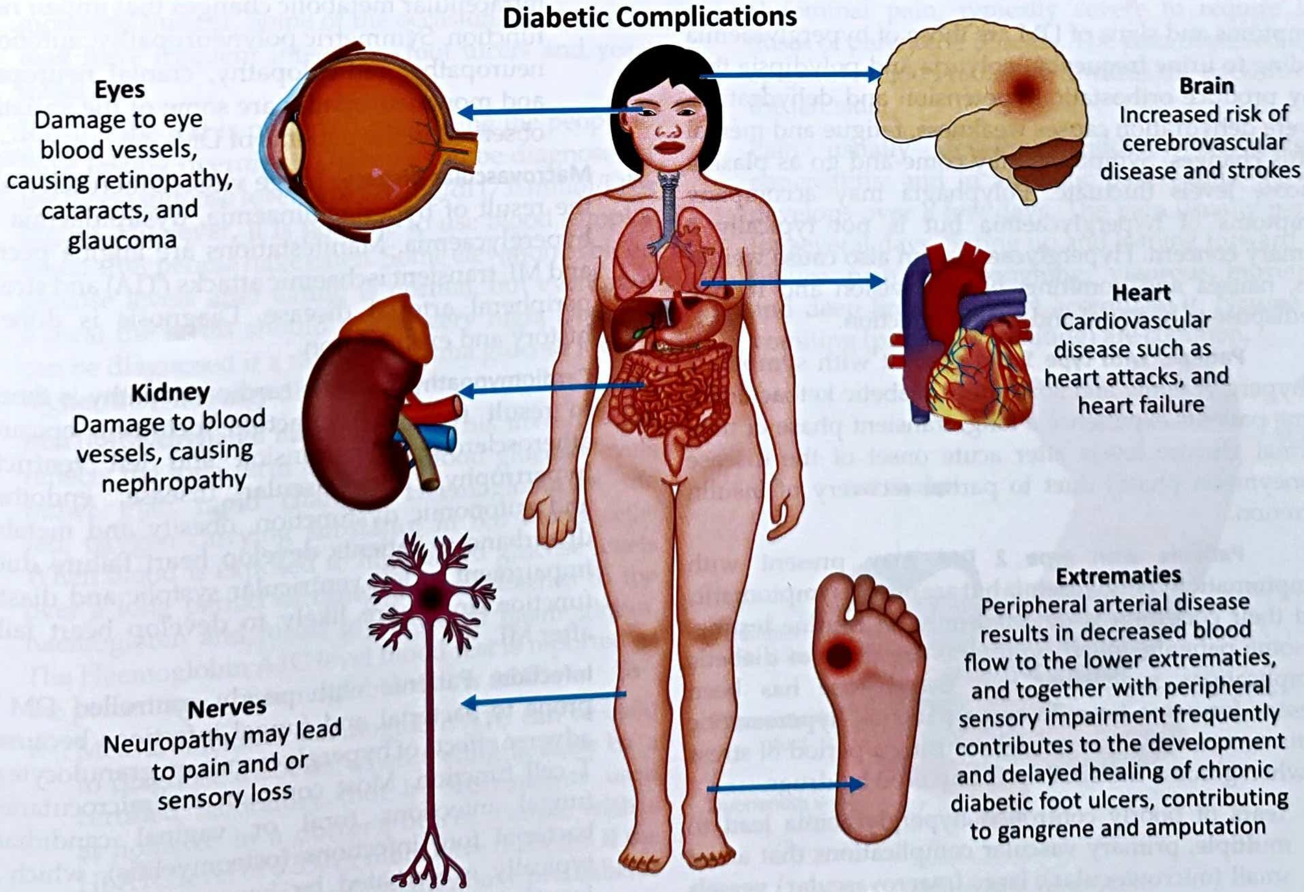

Diabetic Complications
Eyes
Damage to eye blood vessels, causing retinopathy, cataracts, and glaucoma
Brain
Increased risk of cerebrovascular disease and strokes
Heart
Cardiovascular disease such as heart attacks, and heart failure
Kidney
Damage to blood vessels, causing nephropathy
Extrematies
Peripheral arterial disease results in decreased blood flow to the lower extrematies, and together with peripheral sensory impairment frequently contributes to the development and delayed healing of chronic diabetic foot ulcers, contributing to gangrene and amputation
Nerves
Neuropathy may lead to pain and or sensory loss

**Figure 163:** Complications of diabetes mellitus

Diabetes mellitus (DM) is impaired insulin secretion and variable degrees of peripheral insulin resistance leading to hyperglycaemia. Early symptoms are related to hyperglycaemia and include polydipsia (excessive thirst), polyphagia (excess eating) and polyuria (passage of excess amount of urine). Later complications include vascular diseases, peripheral neuropathy and predisposition to infection. Diagnosis is by measuring plasma glucose.

## Types of Diabetes Mellitus

Two types of DM are observed Type I and type II.

1. **Type I also known as IDDM (insulin dependent diabetes mellitus).** This is also known as juvenile onset diabetes mellitus. In this disease, insulin production is absent because of autoimmune β cellular destruction, possibly triggered by an environmental exposure in generally susceptible individuals. This disease usually develops in childhood or early adulthood.
2. **Type II DM is also known as NIDDM (non insulin dependent diabetes mellitus).** This is also known as an adult onset diabetes mellitus. In this disease, insulin secretion is inadequate. Often insulin levels are very high, especially early in the disease, but peripheral insulin resistance and increased hepatic production of glucose make insulin levels inadequate to normalize plasma glucose levels.

## Symptoms and signs of DM

Symptoms and signs of DM are those of hyperglycaemia leading to urine frequency, polyuria and polydipsia that may produce orthostatic hypotension and dehydration. Severe dehydration causes weakness, fatigue and mental status changes. Symptoms may come and go as plasma glucose levels fluctuate. Polyphagia may accompany symptoms of hyperglycaemia but is not typically a primary concern. Hyperglycaemia can also cause weight loss, nausea and vomiting, blurred vision and it may predispose to bacterial and fungal infection.

1. **Patients with type 1 DM** present with symptoms of hyperglycaemia and sometimes diabetic ketoacidosis. Some patients experience a long, transient phase of near normal glucose levels after acute onset of the disease (honeymoon phase) duet to partial recovery of insulin secretion.
2. **Patients with type 2 DM** may present with symptomatic hyperglycaemia but are often asymptomatic, and their condition is detected only on routine testing. In some patients, initial symptoms are those of diabetic complications suggesting that the disease has been present for some time. In some patients, hyperosmotic coma occurs initially, especially during a period of stress or when glucose metabolism is impaired by drugs.

- Years of poorly controlled hyperglycaemia lead to multiple, primary vascular complications that affect small (microvascular), large (macrovascular) vessels or both. The mechanisms by which vascular disease develops include glycosylation of serum and tissue proteins with formation of advanced glycation end products.
- Microvascular complications include **retinopathy, nephropathy** and **neuropathy.**

1. **Diabetic retinopathy:** This is the most common cause of adult blindness, it is characterized by retinal capillary microaneurysms initially and later by macular oedema and neovascularization. There are no early symptoms or signs, but focal blurring, vitreous or retinal detachment and partial or total vision loss eventually develop; rate of progression is highly variable. Diagnosis is done by retinal examination.
2. **Diabetic nephropathy:** One of the leading cause of chronic renal failure. It is characterized by thickening of the glomerular basement membrane, mesangial expansion and glomerular sclerosis. These changes cause glomerular hypertension and progressive decline in GFR. Systemic hypertension may accelerate progression. The disease is usually asymptomatic until nephrotic syndrome or renal failure develops. Diagnosis is by detection of urinary albumin.
3. **Diabetic neuropathy:** This is the result of nerve ischaemia due to microvascular disease, direct effects of hyperglycaemia on neurons, and intracellular metabolic changes that impair nerve function. Symmetric polyneuropathy, autonomic neuropathy, radiculopathy, cranial neuropathy and mononeuropathy are some of the variations observed in the patients of DM.
4. **Macrovascular disease:** Large vessel atherosclerosis is the result of hyperinsulinaemia, dyslipidaemia and hyperglycaemia. Manifestations are angina pectoris and MI, transient ischaemic attacks (TIA) and strokes; peripheral arterial disease. Diagnosis is done by history and examination.
5. **Cardiomyopathy:** diabetic cardiomyopathy is thought to result from many factors including epicardial atherosclerosis, hypertension and left ventricular hypertrophy, microvascular disease, endothelial and autonomic dysfunction, obesity and metabolic disturbances. Patients develop heart failure due to impairment in left ventricular systolic and diastolic function and more likely to develop heart failure after MI.
6. **Infection:** Patients with poorly controlled DM are prone to bacterial and fungal infections because of adverse effects of hyperglycaemia on granulocyte and T cell function. Most common are microcutaneous fungal infections (oral or vaginal candidiasis), bacterial foot infections (osteomyelitis), which are typically exacerbated by lower extremity vascular insufficiency and diabetic neuropathy.

7. **Other complications:** Diabetic foot complications (skin changes, ulceration, infection, gangrene) are common and are attributable to vascular disease, neuropathy and relative immunosuppression.

- The following are the risk factors for the development of DM: Age is 35 years or older: patient having overweight or obesity; patient having a sedentary lifestyle; patient having the family history of DM; patient who is considered as having prediabetes; patient had diabetes during pregnancy or had a baby who weighed more than 4,000 gms at birth; patient who is having high blood pressure; patient who has a lipid disorder such as high cholesterol; the patient who had the history of cardiovascular disease; the patient who had steatotic liver disease (previously termed as fatty liver disease; the patient who had the history of polycystic ovary disease; the patient who has racial or ethnic ancestry that is associated with high racial or ethnic ancestry that is associated with high risk and the patient who has the HIV infection. People with these risk factors should be screened for diabetes mellitus at least once every three years.
- Diagnosis is by fasting plasma glucose levels, assessment of HbA1C level. This is usually detected by doing the screening tests on people who are at risk of developing DM, but have no symptoms. These tests are performed in the patients who are having increased thrist, increased frequency of micturition, increased hunger. Some of the occasions, the patients may have frequent infections, foot ulcers and yeast infections.
- Ideally, the test is preferred by making the people to have fasting overnight. Diabetes can be diagnosed if the blood glucose levels are 126 mg/dl (7.0 mmol/L) or higher. However, it is possible to use blood samples taken after people have eaten. Some elevation of blood glucose levels after eating is normal, but even after a meal the levels should not be very high. Diabetes can be diagnosed if a random plasma glucose level is higher than 200 mg/ dl.
- **HbA1C (Glycosylated haemoglobin):** This investigation reflects the long term trends in blood glucose levels rather than rapid changes. Haemoglobin is the red, oxygen carrying substance in red blood cells. When blood is exposed to high blood glucose levels over a long period of time, glucose attaches to the haemoglobin and forms glycosylated haemoglobin. The Haemoglobin A1C level blood test is reported as the percentage of haemoglobin that is A1C.
  - Measurements of haemoglobin A1C can be used to diagnose diabetes when testing is done by a certified laboratory (not by instruments used at home or in a doctor's office). People with a HbA1C level of 6.5% or more have diabetes. If the level is between 5.7 and 6.4, they have prediabetes and are at risk of developing diabetes.

## Pancreatitis

Pancreatitis can be classified as acute or chronic. Acute pancreatitis is the inflammation that resolves both clinically and histologically.

Chronic pancreatitis is characterized by histological changes that are irreversible and progressive and that result in considerable loss of exocrine and endocrine pancreatic function. Patients with chronic pancreatitis may have a flare up of acute disease.

- Pancreatic acinar cells secrete bicarbonate and digestive enzymes into the ducts that connect pancrease to the duodenum at ampulla of Vater (exocrine function). Pancreatic β cells secrete insulin directly into the blood stream (endocrine function). Both of these functions will be afflicted in the patients of pancreatitis.
- Biliary tract disease and alcoholism account for 80% of acute pancreatitis cases. The remaining 20% of the cases can occur because of mechanical causes such as gall stones, trauma, pancreatic or periampullary cancer; metabolic causes such as hypertriglyceridemia, hypercalcemia, oestrogen use; exposure to toxins such as alcohol, methanol; infectious diseases such as mumps; drugs intake such as ACE inhibitors, azathioprine, furosemide etc.
- An acute attack causes steady, boring upper abdominal pain, typically severe to require large doses of parenteral opioids. The pain observed in the epigastric region radiating towards the back through the left side.
- Pain usually develops suddenly in gallstone pancreatitis; and in alcoholic pancreatitis, the pain develops over a few days. The pain usually persists for several days. Sitting up and leaning forward may reduce pain, but coughing, vigorous movement, and deep breathing may accentuate it. Nausea and vomiting (projectile vomiting) are common.

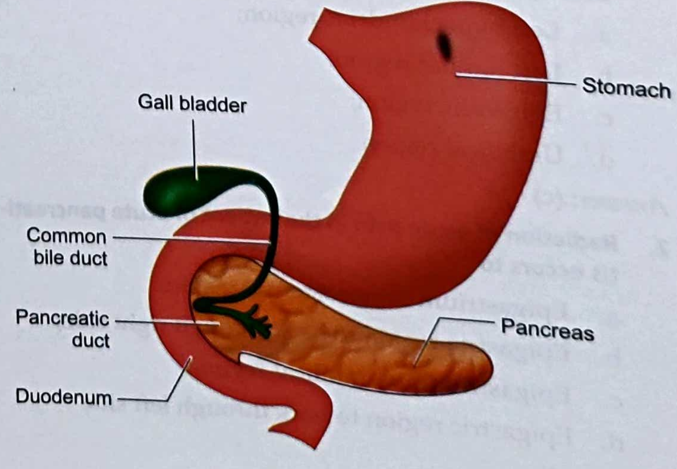


**Figure 164:** Pancreatitis

- The patient appears acutely ill and sweaty. Pulse rate is usually 100 to 140 beats/ minute. Respiration is shallow and rapid. BP may be transiently high or low, with significant postural hypotension. Temperature may be normal or even subnormal. Sensorium may be blunted to the point of semicoma. Scleral icterus is occasionally present. The lungs may have limited diaphragmatic excursion and evidence of atelectasis.
- Chronic pancreatitis is persistent inflammation of pancreas that results in permanent structural damage with fibrosis and ductal strictures, followed by a decline in exocrine and endocrine function. It can occur as the result of chronic alcohol abuse but may be idiopathic. Initial symptoms are recurrent attacks of pain. Late in the disease, some patients develop malabsorption and glucose intolerance.
- Type 3c diabetes develops when the pancreas of the individual experiences damage, such as chronic pancreatitis or cystic fibrosis. People with type 3c diabetes often also have a lack of pancreatic enzymes that are important for digestion.
- Diagnosis is done by analysis of serum markers (amylase and lipase). Once pancreatitis is diagnosed, CT is usually done. In chronic pancreatitis, the diagnosis is done by imaging studies such as ERCP, endoscopic ultrasound. Normal serum amylase should be between 15 – 110 IU/L should be present. Normal range for serum lipase for adults younger than 60 years is 10 to 140 U/L and in adults aged 60 years and above is 24 to 151 U/L. Higher than normal levels of lipase 3 to 10 times the normal levels of lipase, may imply the diagnosis of acute pancreatitis.

## Key summary of the chapter

- Diabetes mellitus (DM) is impaired insulin secretion and variable degrees of peripheral insulin resistance leading to hyperglycaemia. Early symptoms are related to hyperglycaemia and include polydipsia (excessive thirst), polyphagia (excess eating) and polyuria (passage of excess amount of urine). Later complications include vascular diseases, peripheral neuropathy and predisposition to infection. Diagnosis is by measuring plasma glucose.
- Pancreatitis can be classified as acute or chronic. Acute pancreatitis is the inflammation that resolves both clinically and histologically. Chronic pancreatitis is characterized by histological changes that are irreversible and progressive and that result in considerable loss of exocrine and endocrine pancreatic function. Patients with chronic pancreatitis may have a flare up of acute disease.

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain the types of diabetes mellitus
- Explain type 2 diabetes mellitus
- Explain the types of pancreatitis
- Explain acute pancreatitis
- Describe pancreatitis induced diabetes mellitus

### MCQs

1. **The site of origin of abdominal pain in the patient of acute pancreatitis is**

   a. Left hypochondriac region;
   b. Left lumbar region;
   c. Epigastric region;
   d. Umbilical region

*Answer*: (c)

2. **Radiation of acute pain in the patient of acute pancreatitis occurs to**

   a. Epigastrium to retrosternal region;
   b. Epigastric region to back through right side;
   c. Epigastrium to umbilical region;
   d. Epigastric region to back through left side

*Answer*: (d)

3. **To diagnose the diabetes mellitus HbA1C level should be above**

   a. 4; b. 5.5;
   c. 6; d. 6.5

*Answer*: (d)

4. **Acquired onset of diabetes mellitus is also known as**

   a. Juvenile diabetes mellitus;
   b. Type 1 diabetes mellitus;
   c. Type 2 diabetes mellitus;
   d. Type 3c diabetes mellitus

*Answer*: (c)

5. **Type 2 diabetes mellitus is also known as**

   a. Adult onset diabetes mellitus;
   b. Juvenile diabetes mellitus;
   c. Hereditary diabetes mellitus;
   d. None of the above

*Answer*: (a)

6. **Which of the following test is indicative of average level of glucose in the past 3 months?**

   a. Fasting plasma glucose assessment;
   b. Random plasma glucose assessment;

c. HbA1C;
d. All of the above

*Answer*: (c)

**7. Diabetes mellitus is caused by the deficiency of production of**

a. Insulin;
b. Glucagon;
c. Lipase;
d. Thyroxine

*Answer*: (a)

**8. Which of the following feature should not be essentially be present in the patient of diabetes mellitus?**

a. Polyuria;
b. Polyphagia;
c. Polydipsia;
d. Haematuria

*Answer*: (d)

**9. The primary organ afflicted in the patient of diabetes mellitus is**

a. Pancreas;
b. Liver;
c. Thyroid gland;
d. Adrenal gland

*Answer*: (a)

**10. The diagnosis of acute pancreatitis is made when the serum amylase level raises above**

a. 30 mg/dl;
b. 110 IU/L;
c. 80 U/L;
d. 1,000 IU/L

*Answer*: (b)

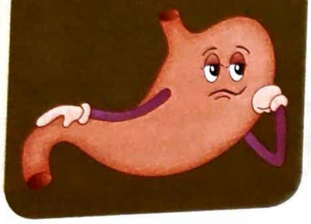
## Chapter resources

- Physical diagnosis – a textbook of symptoms and physical signs by Rustom Jal Vakil and Aspi F Golwalla 13th edition, MPP (Media Promoters and Publishers) Pvt. Ltd, Mumbai, 2010
- A manual on clinical surgery by S Das, 4th edition, Published by S Das, Calcutta, 1998
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12thedition,Butterworth-HeinemannPublishers,1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- https://www.msdmanuals.com/en-in/home/hormonal-and-metabolic-disorders/diabetes-mellitus-dm-and-disorders-of-blood-sugar-metabolism/diabetes-mellitus-dm#:~:text=Diabetes%20can%20be%20diagnosed%20if,should%20not%20be%20very%20high.
- https://www.researchgate.net/figure/Diabetes-mellitus-causes-several-serious-and-life-threatening-complications-due-to_fig2_363570347
- https://www. urmc. rochester .edu/encyclopedia/content. aspx? contenttypeid =167& contentid= lipase#:~:text=The%20normal%20range%20for%20adults,that%20you%20have%20acute%20pancreatitis.
- https://en.wikipedia.org/wiki/Pancreatitis

***

CHAPTER

40



# Vatavyadhi

**Learning Objectives**

- ⇨ To learn the concept of Vatavyadhi
- ⇨ To learn the Nidana Panchaka of Vatavyadhi mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To know about Purvarupa of Vatavyadhi
- ⇨ To know about Samanya Lakshana of Vatavyadhi

## Introduction

*Vatavyadhi* is one of the most commonly observed spectrum of diseases in *Ayurveda* clinical practice. It may involve any part of the body. This occurs because of two major pathological mechanisms either through *Margavarana* (obstruction) or through *Dhatu Kshaya* (depletion of body tissue). When we speak about the large intestine and its relation with gas formation, we can get detailed description about amount and content of gas formed in the large intestine. As per Guyton's textbook of physiology, the amount of gases entering or forming in the large intestine each day averages about 7 to 10 liters, whereas the average amount of gas expelled through anus is usually only about 0.6 liters. The remainder of gas is normally absorbed into the blood through intestinal mucosa and expelled through the lungs. Most of the gases are derived from bacterial action in the large intestine such as carbon dioxide, methane and hydrogen. The other sources of gases formation in alimentary canal are swallowed air and gases diffuse from blood into gastrointestinal tract. Thus, *Pakvashaya* (large intestine) is considered to be main source of normal as well as abnormal amounts of *Vata*.

## Terminology of Vatavyadhi

While discussing about the description of *Vatavyadhi*, three definitions are seen in literatures.

**वात एव व्याधिर्वातव्याधिः,ः** Madhu, Ma.Ni. – 22/1-4

**वातेन जनितो व्याधिर्वातव्याधिः** Madhu, Ma.Ni. – 22/1-4

**वातजनितोऽसाधारणव्याधिर्वातव्याधिरिति** Madhu, Ma.Ni. – 22/1-4

These are the different definitions available in *Madhukosha* commentary of *Madhava Nidana*. First definition says *Vata* itself is *Vatavyadhi*. This definition invariably ruled out as far as the definition is concerned, as the person who is perfectly healthy, he will have *Vata Dosha* and you cannot say this normally functioning *Vata* as *Vatavyadhi*.

The second definition says any disease manifested due to the vitiation of *Vata* is considered as *Vatavyadhi*. There are two types of *Vikara* – *Samanyaja* and *Nanatmaja Vikara*. As far as the second definition of *Vatavyadhi* is concerned, vitiated *Vata* can also be observed in *Samanyaja Vikara* in different stage of progression of *Samanyaja Vikara*. Hence, this definition also not describing the exact nature of *Vatavyadhi*.

The third definition of *Vatavyadhi* can be considered as perfect definition of *Vatavyadhi*. Atypical manifestation of the disease due to the vitiation of *Vata* is considered as *Vatavyadhi*.

## Nidana of Vatavyadhi

**रूक्षशीताल्पलघ्वन्नव्यवायातिप्रजागरैः।**
**विषमादुपचाराच्च दोषासृक्स्त्रवणादति॥15॥**
**लङ्घनप्लवनात्यध्वव्यायामातिविचेष्टितैः।**
**धातूनां संक्षयाच्चिन्ताशोकरो गाति कर्षणात्॥16॥**
**दुःखशय्यासनात् क्रोधादिवास्वप्नाद्भयादपि।**
**वेगसंधारणादामादभिघातादभोजनात्॥17॥**
**मर्माघाताद्गजोष्ट्राश्वशीघ्रयानापतंसनात्।**

Ca.Ci. – 28/15-18

We know from our previous sessions that *Vata Dosha* is having *Ruksha* (dry), *Laghu* (light to digest), *Shita* (cold in touch and potency), *Khara* (rough), *Sukshma* (subtle) and *Chala* (unstable) qualities. Whenever, an individual is exposed to the aetiological factors leading to the increase of above said one or more qualities, will lead to the increase of *Vata Dosha* in the body. When we analyse the aetiological factors mentioned in the literatures, we have to look into the effects produced by the aetiological factors and infer the probable quality of *Dosha* increased in the body. This should be considered even for *Pitta* and *Kapha Dosha* also. The other way of interpretation of aetiological factors is to understand the imbalance of *Panchamahabhuta* taking place in the body and thereby predict the vitiation of *Dosha* in the body. In the context of *Vatavyadhi*, the main *Dosha* vitiated will be *Vata Dosha*. Thus, exposure to aetiological factors leading to the increase of *Akasha* and *Vayu Mahabhuta* may be responsible for the manifestation of *Vatavyadhi*.

- Excess consumption of *Ruksha*[1] (dry) substances or exposure to dry environment.
- Excess consumption of *Shita* (cold) substances or exposure to cold environment[2].
- Excess consumption of *Alpa Bhojana* (little amount of food intake)[3].
- Excess indulgence of sexual intercourse[4].
- Awakening at night time frequently[5].
- Improper management of the diseases[6].
- Excess *Shodhana* (purificatory therapy) or *Panchakarma* therapy[7].
- Excess *Raktamokshana* (blood letting therapy)[8].
- Excess *Langhana* (measures which leads to lightness of the body).
- Excess swimming.
- Excess walking.
- Excess exercise.
- Excess physical straining activities.
- Excess depletion of body tissues[9].
- Excess thinking[10].
- Excess grief.
- Emaciation of body due to the presence of other diseases.

---

[1] When one speaks of consumption of Ruksha substances such as bitten rice etc may lead to the excess amount of secretion of juices from the alimentary canal. This may lead to the shrinkage of intravascular compartment to compensate the increased secretion happening in the alimentary canal. If the person is further consuming Ruksha substances, it may lead to the transfer of fluid even from interstitial and intracellular compartment. Thus, there may be a shrinkage of intravascular, interstitial and intracellular compartments sequentially.
When the person is exposed to Ruksha environment, that may be responsible for tanning of the skin, as there is absence of humidity. This is responsible for the shrinkage of intracellular and interstitial compartments.

[2] Exposure to cold substances and environment can have different effects when exposed to different parts of the body. For example, when a person is exposed cold air, that will have vasoconstriction effect or contraction of airway muscles. When a person is exposed to cold food substances, contraction of alimentary muscles and reduced secretion of gastrointestinal juices can occur. When the person is exposed to cold environment, he may have both peripheral vasoconstriction and contraction of skeletal muscles all over the body. Thus, all these will have impact on either abnormal structure and function of the cell leading to the contraction of the cell and cell organelles.

[3] When an individual is taking very little amount of food or doing fasting, that may lead to the appearance of hunger pangs or hunger contractions. This occurs when the stomach becomes empty for several hours. These are rhythmical peristaltic contractions in the body of the stomach.
Hunger contractions are most intense in the young, healthy people who have high degrees of gastrointestinal tonus; they are also increased by hypoglycemia. These contractions do not begin until 12 to 24 hours after the last food; in starvation, they reach to the peak in 3 to 4 days and gradually weaken in the successive days. This mechanism will lead to gradual depletion of carbohydrate, fat and proteins sequentially. Thus, the person may have emaciation of the body.

[4] Frequent sexual intercourse will lead to the increase of basal metabolic rate, thus, the person may have gradual depletion of nutrients of the body.

[5] Ayurveda literatures say if an individual avoids sleep, that will lead to the increase of Ruksha (dry) quality in the body. Frequent night outs may lead to the excess increase of Ruksha quality in the body, thus increases Vata Dosha in the body.

[6] If a person is receiving any improper treatment when an individual is suffering from any of the diseases, that may lead to the inflammatory responses in the body. This will lead to the multiple responses in the body ranging from increased WBC production, hampered RBC formation, rapid nutrients depletion etc. All above mechanisms will lead to cellular injury either reversible or irreversible.

[7] When a suffering individual is given excess amount of Shodhana or purification therapy, that will lead to excess loss of fluid from the alimentary canal. This will lead to the shift of the fluid from intravascular compartment into alimentary canal. The loss of fluid in the intravascular compartment is later replaced by shift of fluid from interstitial and intracellular compartments respectively. Thus, we can expect Vata Dosha vitiation in the frequent administration of Shodhana therapy.

[8] When an individual is administered Raktamokshana therapy, that will lead to rapid depletion of fluid in the intravascular compartment, which leads to the shift of the fluid from interstitial and intracellular compartments respectively. In case of Shodhana therapy, fluid loss starts from alimentary canal whereas in case of Raktamokshana, fluid loss starts from intravascular compartment.

[9] All above activities are responsible for the rapid depletion of carbohydrates, fats and proteins sequentially. Thus, the person will have progressive emaciation of the body and body parts secondary to the loss of the nutrients.

[10] A thought results from a pattern of stimulation of many parts of the nervous system at the same time, probably involving cerebral cortex, thalamus, limbic system, upper reticular formation of brain stem. This requires glucose and other electrolytes. Frequent thinking requires more utilization of glucose and other electrolytes, leading to rapid nutrient loss from the body.

- Uncomfortable sitting posture.
- Uncomfortable sleeping posture[11].
- Anger[12]
- Sleeping during day time[13].
- Fear[14]
- Injury to *Marma* (vital points of the body)[15].
- Excess traveling in elephant, camel, horse[16].
- Falling from the height[17].

## Samprapti of Vatavyadhi

**देहे स्त्रोतांसि रिक्तानि पूरयित्वाऽनिलो बली॥1 8॥**
**करोति विविधान् व्याधीन् सर्वाङ्गैकाङ्गसंश्रितान्।**

Ca.Ci. – 28/18,19

- The vitiated *Vata Dosha* will fill the empty spaces of *Srotas*.
- There will be manifestation of *Vatavyadhi* either localised or generalised area of the body.

## Purvarupa of Vatavyadhi

**अव्यक्तं लक्षणं तेषां पूर्वरूपमिति स्मृतम्॥** Ca.Ci. – 28/19

- Poorly manifested symptom is considered to be *Purvarupa* of *Vatavyadhi*.

## Samanya Lakshana of Vatavyadhi

**सङ्कोचः पर्वणां स्तम्भो भेदोऽस्नां पर्वणामपि॥2 0॥**
**लोमहर्षः प्रलापश्च पाणिपृष्ठशिरोग्रहः।**
**खाञ्ज्यपाङ्गुल्यकुब्जत्वं शोषोऽङ्गानामनिद्रता॥2 1॥**
**गर्भशुक्ररजोनाशः स्पन्दनं गात्रसुता।**
**शिरोनासाक्षिजत्रूणां ग्रीवायाश्चापि हुण्डनम्॥2 2॥**
**भेदस्तदार्तिक्षेपो मोहश्चायास एव च।**
**एवंविधानि रूपाणि करोति कुपितोऽनिलः॥2 3॥**
**हेतुस्थानविशेषाच्च भवेद्रोगविशेषकृत्।**

Ca.Ci. – 28/20-24

- Development of contracture
- Stiffness of the joints
- Tearing type of pain in the bones[18]
- Tearing type of pain in the joints
- Horripulation[19]
- Irrelevant and incomprehensible speech[20]
- Less movement of hands or stiff hands
- Less movement of back or stiff back
- Less movement of head or stiffness of the head[21]
- Loss of movement of one lower limb[22]
- Loss of movement of both lower limbs[23]
- Less height
- Dryness of the body parts[24]

---

GK

[11] Uncomfortable sitting and sleeping posture will lead to increased and persistent contraction of muscles which leads to the muscular spasm.

[12] When a person is exposed to frequent anger, it stimulates the sympathetic nervous system. The overstimulation may be responsible for tachycardia, hypertension, reduced secretion in the alimentary canal and oversecretion of adrenal medulla. All these mechanisms are leading to the increase of Ushna and Chala Guna in the body.

[13] As per Ayurveda literatures, sleeping during day time is responsible for the increase of Kapha Dosha. Frequent indulgence in sleep during day time is responsible for the increase of Ama, as it is one specific factor which is considered to be Santarpanaja (over nourishment) Nidana.

[14] When a person is exposed to fear, it may indicate the activation of sympathetic nervous system. This activation leads to tachycardia, reduced secretion in the alimentary canal, palpitation etc. All above said features indicate the Chala quality getting increased in the body.

[15] Injury to Kalantara Pranahara Marma (injury to vital points leading to life threatening situation in the long run) or Rujakara Marma (injury to vital points responsible for the pain at the site of the injury) is indirectly implies the dominance of Vata in the body.

[16] Excess travelling in different modes may lead to more burning of energy which will generate energy.

[17] Nature and area of injury determines the vitiation of Vata Dosha when a person falls from height. If there is head injury, the person may show signs of head injury such as unconsciousness or speech deformities or cranial nerve dysfunction which may indicate the vitiation of Vata Dosha in the body. if the person is having trauma to the back or limbs, there is a possibility of fracture of the bones which may require prolonged immobilisation which may lead to disuse atrophy. As per Ayurveda literature, when a person is presented with pain, it invariably indicates the vitiation of Vata Dosha in the body.

[18] Presence of any type of pain in any part of the body is indicative of vitiation of Vata Dosha in the affected part.

[19] This can be attributable to pioerection i.e. hairs standing on the end. Sympathetic nervous stimulation causes erector pili to contract and leading to the position of hairs of the body to become upright stance. This is typically seen in lower animals. As per the current understanding, it is a involuntary activity and this is usually observed when a person is exposed to cold environment. It is one of the mechanism which helps in the maintenance of body temperature. That means exposure of the individual to Shita (cold) environment leads to the increase of Chala quality, and at a time, we can observe the increase of Shita and Chala qualities in the body.

[20] When an individual is having abnormal speech production, it may suggest the involvement of Udanavata and Pranavata during the pathogenesis. Production of speech is a specific function of Vak Indriya and it is under the influence of Udanavata. Pranavata is the Vata which controls the mind which is essential for the production of speech. Irrelevant and incomprehensible speech may indicate abnormal Udanavata and Pranavata.

[21] When an individual is having the increase of Akasha Mahabhuta, the person may have the poor or less movement of the body and body parts.

[22] This clinical feature is indicative of clinical conditions leading to monoplegia or monoparesis of lower limb.

[23] This clinical feature is indicative of clinical conditions leading to paraplegia or paraparesis.

[24] When a person is exposed to cold and dry weather in winter, we can observe the dryness of skin of different parts of the body. This is attrib-

- Loss of sleep[25]
- Destruction of *Garbha*[26] (pregnancy)
- Loss of *Shukra* (semen)
- Loss of menstruation[27]
- Abnormal pulsations[28] in the body
- Tingling sensation[29] in the body parts
- **Shiro Hundana**[30] – cracks or dandruff observed in the head or scalp region
- **Nasa Hundana**[31] – loss of smell perception
- **Akshi Hundana** [32] – paralysis observed around the eyes
- **Jatru Hundana**[33] – disturbance of neck region
- **Griva Hundana**[34] – stiffness of the neck region

## Key summary of the chapter

वातजनितोऽसाधारणव्याधिर्वातव्याधिरिति

Madhu, Ma.Ni. – 22/1-4

- Atypical manifestation of the disease due to the vitiation of Vata is considered as Vatavyadhi.
- As far as Nidana of Vatavyadhi are concerned, all Nidana are responsible for Apatarpana effect in the body (lightness of the body) except Divasvapna (sleeping during day time) and presence of Ama in the body (as Ama is having similar effects of the Kapha Dosha in the body).
- As far as Purvarupa of Vatavyadhi is concerned, it is mentioned that Avyakta (poorly manifestation of the symptoms) are the Purvarupa in case of Vatavyadhi.
- Sankocha (development of contractures), Parvanam Stambha (stiffness of the joints), Asthibheda (tearing type of pain in the bones), Parvabheda (tearing type of pain in the joints) etc are mentioned as Samanya Lakshana of Vatavyadhi.

## Self-Assessment: Questions for Reviews

### Long essays

- Explain the Nidana, Samprapti, Purvarupa and Rupa of the Vatavyadhi

### Short essays

- Explain Nidana of Vatavyadhi
- Explain the Samanya Rupa of Vatavyadhi

### MCQs

1. **Which of the following is having Santarpana effect among Nidana of Vatavyadhi?**

   a. Ruksha Bhojana;

   b. Divaswapna;

   c. Plavana;

   d. Shoka

   *Answer*: (b)

2. **Purvarupa of Vatavyadhi is**

   a. Ekangavata;

   b. Ardita;

   c. Kampa;

   d. Avyakta Lakshana

   *Answer*: (d)

---

utable to the increase of Ruksha quality in the body.

[25] When a person is exposed to loss of sleep, as per Ayurveda literature, it may be responsible for the increase of Ruksha quality in the body, which is an indication of Vata Dosha vitiation in the body.

[26] This may indicate the affliction of Apanavata in the seat of Apanavata.

[27] This can be attributable to the affliction of Apanavata in the body. This may be responsible for the reverse movement of Vata. As we observe the reverse movement, it may indicate the obstruction of the passage of Apanavata either in the male or female reproductive system.

[28] This could be either increased pulsations or reduced pulsations or irregular pulsations. This can be observed in either one or more parts of the body. this can be attributable to the increase or decrease of Chala quality in the body. The increase in Chala quality may indicate the increase of Vayu Mahabhuta in the body and reduced Chala quality may indicate the increase of Akasha Mahabhuta in the body.

[29] Tingling sensation is observed in sensory nervous system dysfunction. It can be attributable to the dysfunction of Vyanavata as body parts afflictions can be observed.

[30] The term Hundana is used contextually. Here, the person will have cracks in the head region or dandruff observed in the head region. This refers to poor blood supply in the head region or poor peripheral vaso constriction. Due to poor blood supply, the person will have dryness of the scalp region and it indicates the increase of Ruksha quality in the head region.

[31] The term Nasa Hundana refers to poor smell perception. Smell perception can be abnormal in case of poor nasal secretion or poor olfactory function or nasal obstruction. In this context, it can be taken as poor olfactory function. This is attributable to poor functioning of Pranavata.

[32] The term Akshi Hundana refers to the paralysis observed in the ocular region. This can be observed in both upper and lower motor facial nerve palsy or in oculomotor, trochlear and abducens nerve palsy. This is attributable to poor functioning of Vyanavata.

[33] The term Jatru Hundana refers to the disturbance of the neck region. This can be attributable to either disturbance of sternocleidomastoid muscle or trapezius muscle which is attached to the neck region. This could be attributable to the poor functioning of Vyanavata.

[34] Stiffness of the neck region can be observed in either disturbance of sternocleidomastoid muscle or trapezius muscle. This is seen in case of the increase of Laghu and Ruksha qualities in the neck region which indicates the increase of Vata Dosha in the neck region.

3. **Avyakta Lakshana is considered as .............of Vatavyadhi.**

| | |
|---|---|
| a. Nidana; | b. Purvarupa; |
| c. Rupa; | d. Upadrava |

*Answer*: (b)

4. **The term Nasahundana as per Chakrapani refers to**
   a. Deviated Nasal septum;
   b. Absence of smell perception;
   c. Running nose;
   d. Absence of nose

*Answer*: (b)

5. **The term Pangu refers to**
   a. Loss of functioning of one lower limb;
   b. Loss of functioning of both lower limbs;
   c. Loss of functioning of both lower limbs and one upper limb;
   d. Loss of functioning of all four limbs

*Answer*: (b)

### Chapter resources

- Charaka Samhita Chikitsa Sthana – 28th chapter: Vatavyadhi Chikitsa Adhyaya
- Sushruta Samhita Nidana Sthana – 1st chapter: Vatavyadhi Nidana Adhyaya
- Madhava Nidana: 22nd chapter: Vatavyadhi Nidana Adhyaya
- Ashtanga Hridaya Nidana Adhyaya: 15th chapter: Vatavyadhi Nidana Adhyaya
- Ashtanga Sangraha Nidana Adhyaya: 15th chapter: Vatavyadhi Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

41

# Snayugata Vata

**Learning Objectives**

- To enlist the types of Snayugata Vata
- To know the definition of Akshepaka
- To enlist the types of Akshepaka, Samprapti of Akshepaka
- To know about Apatanaka, types of Apatanaka
- To know about Dandapatanaka, Antarayama, Bahirayama
- To know about Ardita, Samprapti of Ardita, Lakshana of Ardita, Sadhyasadhyata and difference between Lakshana of Ardita as per Sushruta and Charaka
- To know the definition of Pakshaghata, Samprapti of Pakshaghata and Lakshana
- To know about Kampavata
- To know about Gridhrasi and Vishvachi and Lakshana
- To know about differential diagnosis of Gridhrasi and Vishvachi
- To know about Pangutva and difference between Khanja and Pangu

## Introduction

### Types of Snayugata Vata[1]:

बाह्याभ्यन्तरमायामं खल्लिं कुब्नत्वमेव च।
सर्वाङ्गैकाङ्गरोगांश्च कुर्यात् स्नायुगतोऽनिलः॥ Ca.Ci. – 28/36

As per *Caraka Samhita*, if the vitiated *Vata* afflicts *Snayu*, that will lead to the manifestation of *Bahyayama*[2] (backward bending of the body like a bow), *Abhyantara Ayama* (forward bending of the body like a bow), *Khalli*[3] (muscle cramps in the upper or/ and lower limbs), *Kubjatva*[4] (dwarfness), *Sarvanga Roga*[5] (affliction of whole body by vitiated *Vata Dosha*) and *Ekanga Roga*[6] (affliction of one part of the body by vitiated *Vata Dosha*).

स्नायौ सिरीकण्डराभ्यो दुष्टाः क्लिश्नन्ति मानवम्।
स्तम्भसंकोचखल्लीभिर्ग्रन्थिस्फुरणसुप्तिभिः॥21॥ Ca.Su. – 28/21

---

GK

[1] The term Snayugata Vata refers to the pathological events taking place in the human body. These are actually not the final diagnosis.

[2] The features mentioned in Bahirayama and Abhyantara Ayama mimic the features of decorticate and decebrate lesion. The term decorticate lesion refers to the detachment of cerebral cortex from rest of the nervous system and decerebrate lesion refers to the detachment of cerebral hemisphere from the rest of the nervous system. This is indicative of severity of decerebrate lesion over decorticate lesion.

[3] In this spectrum of the disease Khalli, the person may have deficiency of essential nutrients such as sodium, potassium and calcium ions which are essential factors for the normal functioning of skeletal, smooth and cardiac muscles and neuronal function. Due to the absence of these essentials, the person may have muscle cramps and poor functioning of the neurons. When compared to the whole body, upper and lower limbs will have maximal functions, in the absence of these electrolytes, the person naturally develops cramps in the upper and lower limbs.

[4] In this disease, the person may have short stature i.e. measurement from head to toe will be decreased when compared to the individual of the same age group. When we search the textbooks of physiology, this type of clinical presentation can be seen in growth hormone deficiency in children as well as in adults.

[5] This type of clinical presentation can be observed in case of generalized nutritional deficiency either macronutrients or micronutrients or in case of intrinsic aetiology.

[6] This type of clinical presentation can be observed in case of localized or extrinsic cause such as trauma to one particular part of the body.

When the vitiated *Vata Dosha* afflicts *Snayu*, *Sira* and *Kandara*, the person will have the manifestation of *Stambha* (stiffness of one part or whole of the body), *Sankocha* (contractures), *Khalli* (muscle cramps in the upper and lower limbs), *Granthi* (nodular swelling), *Sphurana* (abnormal pulsations in unusual parts of the body) and *Supti* (numbness of the one part or whole body).

## Akshepaka

मुहुराक्षिपति क्रुद्धो गात्राण्या क्षेपको ऽनिलः॥50॥
पाणिपादं च संशोष्य सिराः सनायुकण्डराः।

Ca.Ci. – 28/50,51

- Vitiated *Vata Dosha* causes frequent involuntary movements in the one part or whole body with symptom free period in between the episodes. This will lead to the dryness of *Pani* (palms) and *Pada* (soles) along with dryness of *Sira*, *Snayu* and *Kandara*.
- The whole clinical presentation is termed as *Akshepaka*[7].

पाणिपादशिरःपृष्ठश्रोणीः स्तनाति मारुतः॥
दण्डवत्स्तब्धगात्रस्य दण्डकः सोऽनुपक्रमः।

Ca.Ci. – 28/51, 52

- When vitiated *Vata Dosha* is responsible for the stiffness of *Pani, Pada, Shira, Prishtha, Shroni*, that will lead the body to become stiff like a stick, this is called as *Dandaka*[8]. This is considered as *Asadhya* (incurable) in nature.

यदा तु धमनीः सर्वाः कुपितोऽभ्येति मारुतः॥50॥
तदाक्षिपत्याशु मुहुर्मुहुर्देहं मुहुश्चरः॥
मुहुर्मुहुस्तदाक्षेपादाक्षेपंक इति स्मृतः॥51॥

Su.Ni. – 1/50,51; Ma.Ni. – 22/27,28

- When vitiated *Vata Dosha* permeates all *Dhamani*, it causes frequent movements, repeated convulsive episodes in the body. Because of producing convulsions, it is known as *Akshepaka*.

वायुरूर्ध्वं व्रजेत् स्थानात् कुपितो हृदयं शिरः॥
शङ्खौ च पीडयत्यङ्गान्याक्षिपेन्नमयेच्च सः॥64॥
निमीलिताक्षो निश्चेष्टः स्तब्धाक्षो वापि कूजति॥
निरुच्छासोऽथ वा कृच्छावुच्छस्यात् नष्टचेतनः॥65॥
स्वस्थः स्याद्धृदये मुक्ते आवृते तु प्रमुह्यति॥
कफान्वितेन वातेन ज्ञेय एषोऽपतन्त्रकैः॥66॥

Su.Ni. – 1/64-66

- Aggravated *Vata Dosha* moves from its place upwards to the heart, head and temporal region and afflicts the limbs with convulsions (involuntary movements) and bending of the body.
- The patient will have closed eyes, loses movement or with fixed gaze., makes indistinct sound like pigeion with stooped inspiration or inspires with difficulty while losing consciousness.

कफपित्तान्वितो वायुर्वायुरेव च केवलः॥
कुर्यादाक्षेपकं त्वन्यं चतुर्थममिघातजम्।

Ma.Ni. – 22/37

## Apatanaka

दृष्टि संस्तभ्य संशां च हत्वा कण्ठेन कूजति।
हृदि मुक्ते नरः स्वास्थ्यं याति मोहं वृते पुनः॥31॥
वायुना दारुणं प्राहुरेके तदक्षतानकम्।

Ma.Ni. – 22/31-32

- The person will have steadiness of the gaze without proper knowledge out of the fixed gaze; sounds will be produced through the throat (e.g. stridor); altered state of consciousness
- This disease is manifested by abnormally vitiated *Vata Dosha* and it is a serious disease.

## Sadhyasadhyata of Apatanaka

गर्भपातनिमित्तश्च शोणितातिस्त्रवाच्च यः॥
अभिघातनिमित्तश्च न सिद्ध्यत्यपतानकः।

Ma.Ni. – 22/38

The following parameters met with the patient of *Apatanaka* is considered as *Asadhya Vikara* (incurable).

- The development of Apatanaka in the lady during the pregnancy
- When Apatanaka disease is manifested due to excessive bleeding (excessive Rakta Pravritti) from the body[9]
- If the individual suffering from Apatanaka, manifested in him due to any physical trauma

---

GK

[7] This spectrum of the diseases is attributable to the seizure episodes which manifest due to the presence of organic lesion such as intracranial space occupying lesion (brain tumour etc). Whereas seizure episodes without the presence of organic (structural) lesion is termed as Apasmara. Thus, the difference between Akshepaka and Apasmara is the presence and absence of organic (structural lesion) respectively.

[8] The clinical features mentioned in the Dandaka spectrum of diseases is attributable to the features of status epilepticus. Status epilepticus is defined as a seizure that lasts longer than 5 minutes or having more than 1 seizure within a 5 minutes period, without returning to a normal level of consciousness between episodes. This disease is a medical emergency, if untreated, the person may have permanent brain damage or death.

- There are several risk factors for development of status epilepticus. These include poorly controlled epilepsy, low blood sugar, cerebrovascular accident, renal failure, hepatic failure, encephalitis, HIV, alcohol or drug abuse, head injuries

[9] This can be attributable to the clinical features of eclampsia. This disease is a rare but serious complication of pre eclampsia. Pre-eclampsia is a disorder of pregnancy in which the lady with this disease develops seizures (convulsions) during pregnancy. Seizures are episodes of shaking, confusion and disorientation caused by abnormal brain activity. This usually occurs after 20th week of pregnancy. This is rare and affects < 3% of people with pre-eclampsia.

## Apatantraka[10]

क्रुद्धः खैः कोपनैर्वायुः स्थानादूर्ध्वं प्रपद्यते।
पीडयन् हृदयं गत्वा शिरः शङ्खौ च पीडयन्॥12॥
धनुर्वन्नमयेद्गात्राण्याक्षिपेन्मोहयेत्तथा।
(नेमयेचाक्षिपेचाङ्गान्युच्छासं निरुणाद्धि च॥)
कृच्छ्रेण चाप्युच्छ्वसिति स्तब्धाक्षोऽथ निमीलकैः॥
कपोत इव कृजेच्च निःसंक्षः सोऽपतन्त्रकः।
दृष्टिं संस्तम्भ्य संज्ञां च हत्वा कण्ठेन कूजति॥14॥ Ca.Ci. – 9/12

- Vitiated *Vata Dosha* will move upwards from its normal location, thereby leads to the affliction of *Hridaya, Shira* and *Shankha* region, due to this, the person may have bending of the body in a similar fashion as the bending of the bow, and it is associated with frequent involuntary movements.
- This is associated with breathlessness during expiration, stiffness of the *Indriya*, closing of the eyes, sound produced by the patient is simulating the sound produced by pegion, altered sensation, fixed gaze and sound is produced from the throat region.

क्रुद्धः स्वैः कोपनैर्वायुः स्थानादूर्ध्वं प्रपद्यते॥28॥
पीडयन् हृदयं गत्वा शिरःशङ्खौ च पीडयन्।
धनुर्वन्नमयेन्नात्राण्याक्षिपेन्मोहयेत्तदा॥29॥
स कृच्छ्रादुच्यसेच्चापि स्तब्धाक्षोऽथ निमीलकः।
कपोत इव कूजेच्च निःसंशः सोऽपतन्त्रकः॥30॥ Ma.Ni. – 22/28-30

- Because of the vitiation of *Vata Dosha* in the body due to various *Nidana* (aetiolgical factors mentioned in *Ayurveda* textbooks), abnormally increased *Vata Dosha* move upwards and cases pain in the chest region, head and temporal region.
- This leads to the abnormal bending of the body like a bow, associated with involuntary movements of the body and altered state of consciousness. The patient will have difficulty in breathing, eyes wide open without movement of lids or eyes completely closed. In this condition, the patient voice may have the production of sounds which simulates the sound of pigeon.

## Dandapatanaka

कफान्वितो भृशं वायुस्तास्वेव यदि तिष्ठति॥
दण्डवत्स्तम्भयेद्देहं स तु दण्डापतानकः। Ma.Ni.. – 22/32

- When vitiated *Vata* leads to the stiffness of the hands, feet, head, back and hip, the becomes stiff and the stiffness resembles stick (*Danda*), hence the name *Dandapatanaka*[11] as per *Sushruta* and *Madhavakara.* This is also being termed as *Dandaka* as per *Charaka.*

## Antarayama[12] or Abhyantara Ayama

Ma.Ni. – 22/33
धनुस्तुल्यं नमेद्यस्तु स धनुस्तम्भसंज्ञकः॥
अङ्गुलीगुल्फजठरहृद्वक्षोगलसंश्रितः।
स्नायुप्रतानमनिलो यदाऽऽक्षिपति वेगवान्॥34॥
विष्टब्धाक्षः स्तब्धहनुर्भग्नपार्श्वः कफं वमन्।
अभ्यन्तरं धनुरिव यदा नमति मानवम्॥35॥
तदाऽस्याभ्यन्तरायामं कुरुते मारुतो बली। Ma.Ni. – 22/34-36

- When vitiated *Vata* obstructs Manya region situated in the neck region the *Dhamani* get pulled inside, making the body to be bent like *Dhanush* (bow) from the anterior side.
- This is associated with stiffness of the eyes, yawning, biting of the teeth, vomiting of mucus, pain in the flanks, stiffness of the neck and stiffness of the head.

## Bahirayama[13]

---

GK

[10] Apatanaka and Apatantraka are the spectrum of diseases which manifest as a complication of Hridroga.
हृद्रोगमप तन्त्रकमाह ! Ca.Si. – 9/12-15, Chakra
- This spectrum of diseases can be attributable to development of altered state of consciousness or involuntary movements manifested due to the primary source of pathogen present in the cardiac region.
- In this occasion, due to either increased viscosity of the blood or due to thrombosis formed in the heart getting embolized into the cerebral vessel or due to the atherosclerotic changes in the ascending aorta which get embolized into the cerebral vessel, the person may develop the features of altered consciousness. This may be associated with involuntary movements when the blood supply to the basal ganglia or midbrain or cerebellum is getting hampered or completely stopped.

[11] Refer to the context of Dandaka mentioned in this chapter.

[12] The clinical features of Antarayama spectrum of diseases are attributable to decorticate lesion of the central nervous system.
- The term decorticate lesion refers to an abnormal posturing in which a person is stiff with bent arms, clenched fists, and legs held out of straight. The arms are bent towards the body and the wrists and fingers are bent and held on the chest.
- This is indicative of sign of severe damage in the brain.
- This is indicative of damage to the nerve pathway in the midbrain, which is between the brain and spinal cord.
- Although, decorticate lesion or posture is serious, it is usually not as serious as a type of abnormal posture called decerebrate posture.

[13] The clinical features of Bahirayama spectrum of diseases are attributable to decerebrate lesion of the central nervous system.
- Decerebrate posture is an abnormal body posture that involves the arms and legs being held straight out, the toes being pointed downward, and the head and neck being arched backward. The muscles are tightened and held rigidly. This type of posturing usually means there has been severe damage to the brain.
- A severe brain injury is usual cause of this type of posture.
- This posture can occur unilaterally or bilaterally. It can occur just in the arms also. This may alternate with decerebrate posture.
- The diseased individual may have decorticate lesion on one side of the body and decerebrate lesion on the other side.
- Bleeding in the brain from any cause; brain stem tumours; cerebrovascular accidents; traumatic brain injury; brain dysfunction due to illicit drugs, poisoning or infection; intracranial space occupying lesion (ICSOL); brain injury due to hypoxia can cause decerebrate

**बाह्यस्नायुप्रतानस्थो वाह्यायामं करोति च॥36॥**
**तमसाध्यं बुधाः प्राहुर्वक्षःकट्युरुभञ्जनम्।** Ma.Ni. – 22/36,37

- When vitiated *Vata* leads to the bending of the body, the nature of bending will be like bending of *Dhanush* (bow) from the posterior side. The *Snayu* of the chest, pelvic region undergo stiffness of the body along with bending posteriorly. This is considered as *Asadhya* (incurable) in nature.
- This is associated with gnashing of the teeth, yawning, salivation and loss of speech, when it comes with force, it kills the patient or produces restlessness.

## Ardita

**खस्थः स्याददर्दितादीनां मुटुंबेंगे गतेऽगते॥** Ca.Ci. – 28/52

*Ardita* is the spectrum of diseases, which is explained in different contexts. As per the descriptions available in *Ayurveda* literatures, appearance of clinical features, duration of the illness determines the diagnosis and prognosis of *Ardita*. Literally, the term *Ardita* refers to the illnesses which afflict the individuals in episodes. In other words to say, when we want to do the diagnosis of Ardita, he will have symptoms only during the episodes of the illness and symptoms will be remitted or subsided in between the episodes of the illness. As per *Charaka, Ardita, Antarayama, Bahirayama, Hanustambha, Akshepaka* and *Dandaka* are included under the large umbrella of clinical spectrum *Ardita*. As per *Charaka, Ardita* can afflict the face or face and one side of the body. *Chakrapani Datta*, commentator of *Charaka Samhita* mentioned the difference between *Ardita* and *Pakshaghata* as these two illnesses overlap in clinical presentation. *Ardita* is observed as a episodic illness and *Pakshaghata* is a persistent illness and never occurs as episodic illness. As per *Susrhruta, Ardita* can afflict only face of the individual. Affliction of one part of the body can be included in *Pakshaghata* spectrum. But, for the practical understanding, *Ardita* is the illness which afflicts the face of the individual barring the other body parts.

## Nidana of Ardita

**गर्भिणीसूतिकाबालबृद्धक्षीणेष्वसृक्षये॥**
**उच्चैर्व्याहरतोत्यर्थ खादतः कठिनानि च॥68॥**
**हसतो जृम्भतो भाराद्विषमाच्छुसनादपि॥** Su.Ni. – 1/68,69

- When an individual is having excess *Rakta Kshaya* (blood loss from the body) such as pregnancy[14], puerperal period[15], children[16], elderly people[17], people who are having excess depletion of body tissues[18]
- When the person is shouting persistently at the top of his voice
- When the person is eating very hard food articles[19]
- Excess laughing[20]
- Excess yawning[21]
- Excess carrying of heavy weight objects on head[22]
- Two different meanings are there for this term, lying on uneven ground or surfaces or in case of abnormal

---

**GK**

lesion.

[14] When a pregnant lady is presented with seizures, hypertension and proteinuria, she is likely to have cerebrovascular accident, if there is blockage of the blood supply to the brain or surroundings of the brain secondary to hypertension. This may occur as a result of either infarction due to thromboembolism or due to haemorrhage due to hypertension.

[15]
- Risk factors for stroke during pregnancy and the puerperal period include gestational hypertension, HELLP syndrome (characterized by hemolysis, elevated liver enzymes, and thrombocytopenia), frequent vomiting, and changes in hemolysis and the pre-thrombotic state in late pregnancy and the postpartum period
- age ≥40 years, black and Asian races, hemorrhagic stroke (compared with ischemic stroke), anemia, heart failure, cardiomyopathy, atrial fibrillation, hypertension, preeclampsia/eclampsia, gestational diabetes, and cesarean delivery

[16] AV malformation in brain in children is one of the major cause of the manifestation of neurological manifestation.

[17] History of coronary arterial disease (CAD), hypertension, diabetes mellitus, dyslipidaemia, intracerebral aneurysms are the possible risk factors and possible causes of neurological manifestation in elderly people.

[18] When an individual is consuming less amount of nutritious food, he may likely to develop nutritional deficiency which in turn leads to the conversion of stored fat into circulating fat. When there is conversion of stored fat into circulating fat, there is a risk of atherosclerosis in the aorta or common carotid vessels or in the intracerebral vessels. Thus, the person may develop neurological manifestation. This can be considered as one of the two major mechanisms of the Vatavyadhi – Dhatu Kshaya, the other one is being Avarana.
- Avarana mechanism of Vatavyadhi is considered to be occurring as Santarpana type of pathophysiology. Dhatu Kshaya is considered to be acting as Apatarpana type of pathophysiology as per Ayurveda fundamentals as far as the Samprapti of Vatavyadhi is concerned.

[19] It is being said that upper respiratory ailments as one of the risk factors for the development of neurological manifestation, Bell's palsy in particular. When an individual is consuming hard substances, it may lead to improper mastication of food, which in turn may lead to swallowing difficulties, which in turn may lead to aspiration of food either to the nose or to the larynx, trachea etc. This may lead to the manifestation of upper respiratory ailments, if the food enters the nose and larynx.

[20] pathological laugher is considered as one of the important prodromal symptoms of cerebrovascular accident. It results from the impairment in the connectivity between frontal cortex, temporal cortex, hypothalamus, amygdala, and cerebellum, which are involved in various steps of modulation of laughter phenomenon.

[21] Pathological yawning is one of the clinical sign in disorders affecting the brainstem. This can be seen in the patients of acute MCA (middle cerebral artery stroke) and in supratentorial stroke. Migraine, epilepsy, disorders of basal ganglia, multiple sclerosis and multiple sclerosis are responsible for the manifestation of pathological yawning.

[22] It is being said that normal cerebral blood flow is around 50 ml/ 100 gm of brain/ minute. Carrying heavy load on one's head may likely to increase the blood flow to several fold. Thus, the person may have development of intracerebral haemorrhage if this habit is frequently performed.

breathing patterns[23]

## Lakshana of Ardita

शिरोनासौष्ठचिबुकललाटेक्षणसन्धिगः॥69॥
अयित्वाऽनिलो वक्रमर्दितं जनयत्यतः॥
वक्रीभवति वक्रार्धे ग्रीवा चाप्यपवर्तते॥70॥
शिरश्चलति वाक्सङ्गो नेत्रादीनां च वैकृतम्॥
ग्रीवाचिबुकदन्तानां तस्मिन् पार्श्वे तु वेदना॥71॥
यस्याग्रजो रोमहर्षो वेपथुर्नेत्रमाविलम्॥
वायुरूर्ध्व त्वचि स्वापस्तोदो मन्याहनुग्रहः॥
तमर्दितमिति प्राहुर्व्याधि व्याधिविशारदाः॥72॥ Su.Ni. – 1/69-72

अतिवृद्धः शरीरार्धमेकं वायुः प्रपद्यते।
यदा तदोपशोष्यासुग्बाहुं पादं च जानु च॥38॥
तस्मिन् सङ्कोचयत्यधै मुखं जिह्मं करोति च।
वक्रीकरोति नासा भूललाटाक्षिहनूस्तथा॥39॥
ततो वक्रं व्रजत्यास्ये भोजनं वक्रनासिकेंम्।
स्तब्धं नेत्रं कथयतः क्षवयुश्च निगृहाते॥40॥
दीना जिल्ला समुत्क्षिप्ता कला सज्जति चास्य वाकू।
दन्ताश्चलन्ति वाध्येते अवणौ भिद्यते स्वरः॥41॥
पादैहस्ताक्षिजलेरुशङ्खश्रवणगण्डरुकू।
अर्धे तस्मिन्मुखार्थे वा केवले स्यात्तदादितम्॥42॥

Ca.Ci. – 28/38-42

- Affliction of head, nose, lips, chin, forehead, periorbital region takes place leading to Ardita
- Deviation of mouth to one side
- Stiffness of the neck[24,25]
- The head keeps on shaking[26]
- Slurred speech[27]
- Asymmetry of the eyes[28]
- Discomfort in the nape of neck, chin and teeth, horripulation, involuntary movements[29]
- Numbness of the skin
- Pricking type of pain[30]
- Stiffness of nape of neck
- Stiffness of the temporo mandibular joint[31]
- Ingested food comes through the nose[32]
- Weak teeth[33]

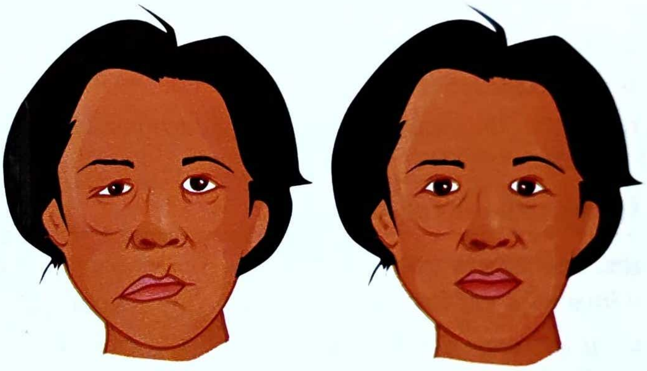


Figure 165: Lakshana of Ardita

---

[23] It is being said that sleep disorders including sleep disordered breathing, insomnia, hypersomnia, parasomnias and sleep related movement disorders are linked with the manifestation of cardiovascular conditions, which in turn increases the risk of development of cerebrovascular events.

[24]

[25] In Bell's palsy (LMN facial nerve palsy), there will be deviation of mouth towards the sound side. This means on the sound side of the face, increased muscular tension is noticed, if this is continuously observed in the patient of Bell's palsy, there is a possibility of development of contractures of the muscles of the neck. This is leading to stiffness of the neck.

[26] In western medicine, this is being termed as titubation. It means a staggering gait or swaying or shaking of the trunk or head that is observed especially in individuals affected with a disease of cerebellum.
- It is being said that facial nucleus i.e nucleus of VII cranial nerve which is located in pons gets its blood supply from anterior inferior cerebellar artery (AICA) which is a branch of basilar artery. T
- Thus, any blood supply is hampered from this artery, facial nerve nucleus may not get adequate blood supply, thus, this may be a clinical presentation in the patient of VII cranial nerve palsy.

[27] As articulation of speech is affected, the person likely to have slurred speech. Words starting from p, b, m require movement of lips; words starting from t, d etc require palatal movement. In the person suffering from VII cranial nerve palsy, this may be affected, thus he may develop slurred speech.

[28] This is specifically found in LMN variety of facial palsy. There will be inability of the patient to completely close the eyes is being observed. Thus, asymmetry in the appearance of the eyes is likely.

[29] Hemifacial spasm is a disorder characterized by paroxysmal, involuntary twitching of facial muscles of one side of the face innervated by the ipsilateral facial nerve (VII cranial nerve). It is considered as one of the subtype of peripheral (neuromuscular) movement disorder.

[30] Facial nerve is considered to be mixed nerve which has both sensory and motor functions. Sensory function of the facial nerve supplies nerve supply to external auditory canal, tympanic membrane, pinna of the ear, and anterior 2/3rd of the tongue. When the person is suffering from facial nerve palsy, these areas may have either numbness or sensory impairment in these regions.

[31] Refer to the description mentioned in the context of stiffness of the neck in this context of this chapter.

[32] This is attributable to dysfunction of soft palate. In this occasion, the person will not have complete closure of nasal cavity occurs during swallowing, which may lead to aspiration of food into the nasal cavity, resulting in the coming of the food through the nose.

[33] This is attributable to loss of muscle tone of oral muscles of the affected side, where the mastication of the food will be decreased.

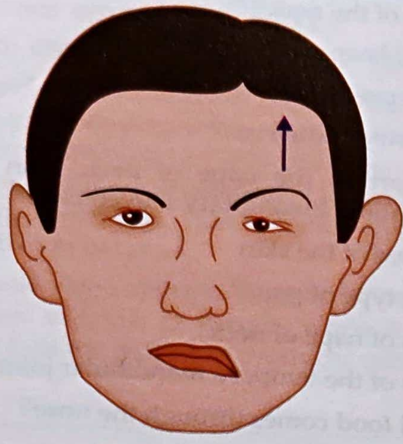


**Figure 166:** Hemifacial spasm

- Hearing impairment[34]
- Hoarseness of voice[35]
- Pain in the foot, palm, eyes, thigh, temporal region, ears and cheeks[36]

## Sadhyasadhyata of Ardita

क्षीणस्यानिमिषाक्षस्य प्रसकाव्यक्तभाषिणः॥
न सिध्यत्यर्दितं वार्ड त्रिवर्ष वेपनस्य च॥7 3॥ Su.Ni. – 1/73

- If the person suffering from *Ardita* is emaciated[37], *Asadhya* (incurable).
- If the eye of the person is fixed on gaze[38], then *Asadhya* (incurable).
- If one is suffering from irrelevant or incomprehensible speech[39] continuously, *Asadhya* (incurable).
- If the duration of illness is long[40], *Asadhya* (incurable)
- If the duration of the illness is of *Tri Varsha* (3 years duration), *Asadhya* (incurable) which indicates the chronicity of the illness.
- If the person of *Ardita* has secretions from *Nasa* (nostril), *Akshi* (eyes) and *Mukha* (oral cavity), then *Asadhya* (incurable).
- If the person is having involuntary movements[41], then *Asadhya* (incurable).

## Pakshaghata

गृहीत्याऽर्थ तनोबांयुः सिराः नायुर्विशोष्य च॥3 9॥
पक्षमन्यतरं इन्ति सन्धिवन्धान्विमोक्षयन्।
कृत्नोऽर्घकायस्तस्य स्यादकर्मण्यो विचेतनः॥4 0॥
एकाङ्गरोगं तं केचिदन्ये पक्षवधं विदुः।
सर्वाङ्गरोगस्तद्धश्च सर्वकायाधितेऽनिले॥4 1॥ Ma.Ni. – 44/39-41
हत्यैकं मारुतः पक्षं दक्षिणं वाममेव वा॥5 3॥
कुर्याचेष्टानिवृत्ति हि रुजं वाफ्स्तम्भमेवं च।
गृहीत्वाऽधे शरीरस्य सिराः स्त्रावृर्विशोष्य च॥5 4॥
पादं संकोचयत्येकं हस्ते वा तोदशूलछत्।
एकाङ्गरोगं तं विद्यात् सर्वाङ्गं सर्वदेहजम्॥5 5॥ Ca.Ci. – 28/53-55

- Vitiated *Vata Dosha* occupies and affects half of the

---

GK

[34] Vestibulo cochlear nerve (VII cranial nerve) is responsible for normal hearing. This may be usually affected along with facial nerve (VII cranial nerve) affliction. In this occasion, the person may have hearing impairment, tinnitus and dizziness. This is presented with herpetic vesicles around pinna or oral mucosa, otalgia and facial nerve palsy.
- We can have another hypothesis to be put forth in case of hearing impairment. When the person is presented with regurgitation of food from oral cavity into nasal cavity due to improper closure of soft palate. This may lead to the occlusion of eustachian tube which connects between middle ear and nasal cavity. Due to this, the air in the middle ear is absorbed by the surrounding tissues, thereby the person may have conductive variety of deafness.

[35] This may be attributable to the aspiration of the food into the larynx due to improper functioning of soft palate, tongue etc, which may be identified by hoarseness of voice.

[36] This type of clinical presentation is observed in the patiehts where whole half of the body is afflicted including face of the individual.

[37] Vatavyadhi is manifested in individuals either due to Avaravana (Santarpana effect) and Dhatu Kshaya (Apatarpana effect). Santarpana effect can be seen in the patients who are having the habit of over energy intake; whereas Apatarpana effect can be seen in the patients who are taking less amount of nutritious diet, this may lead to emaciation of the body which ocurrs as a result of conversion of stored fat into circulating fat.
- Nutrition requirement of brain: Normal adult requires 200 gms of glucose per day; two-thirds of which (130 gms) is specifically needed by the brain to cover its glucose needs. The brain competes with rest of the body for glucose when levels dip very low – such as during starvation.
- Thus Apatarpana Nidana causes nutrient deprivation to the brain, thereby the person may develop abnormal neurological manifestation.

[38] There is one condition called gaze palsy. The term gaze palsy refers to sudden restricted movement of the eyeball. This is specifically observed in midbrain lesions. When there is involvement of midbrain, it is considered to be difficult to subsidence of the symptoms completely.

[39] As far as disturbed speech is concerned, dysphasia and dysarthria are present in the patients of Ardita. Dysphasia is considered to be occurring as a result of brain dysfunction and dysarthria is resulted when the patient is having disturbances in articulation of muscles of speech.
- Further, the person may have fluent and non fluent speech. Fluent speech involves normal or near normal speech, but incomprehensible speech, usually seen in parietal lobe lesions. Non fluent speech involves less amount of irrelevant and incomprehensible speech, which may be seen in frontal lobe lesions.

[40] It is being said that shorter illness requires shorter line of treatment for recovery; long duration illness requires long duration of treatment.

body. This abnormal *Vata* is carried through *Sira* and dries up the *Snayu*.

- Clinical manifestation is loss of strength on half[42] of the side either right or left side.
- Pricking type of pain on affected side of the body[43]
- Altered state of consciousness[44]
- Associated with pain in the affected part[45]
- Speech disturbances[46]
- This is also being termed as *Ekangaroga* and sometimes *Pakshavadha*.
- When similar mechanism involves whole body, that is termed as *Sarvangaroga*.

अधोगमाः सतिर्यग्गा धमनीरुध्र्वदेहगाः॥
यदा प्रकुपितोऽत्यर्थ मातरिश्वा प्रपद्यते॥60॥
तदान्यतरपक्षस्य सन्धिबन्धान् विमोक्षयन्॥
हन्ति पक्षं तमाहुर्हिं पक्षोघातं भिषग्वराः॥61॥
यस्य कृत्वं शरीरार्धमकर्मण्यमचेतनम्॥
ततः पतत्यसुन् बापि जहात्यनिलपीडितः॥62॥ Su.Ni. – 1/60-62

- When abnormally vitiated *Vata Dosha* gets localised in *Dhamani* going downward, obliquely and upwards, it paralyses single side of the body.
- *Dushta* or *Prakupita Vata* dissociates the joints between *Sira*, *Snayu* and *Kandara*.
- Abrupt loss of movements in one half of the body

## Sadhyasadhyata of Pakshaghata[47]

शुद्धबातहतं पक्षं कृच्छ्रसाध्यतमं विदुः॥
साध्यमन्येन संसृष्टमसाध्यं क्षयहेतुकम्॥63॥ Su.Ni. – 1/63

- Single *Vata* dominant *Pakshaghata*[48] is considered as *Krichrasadhya* (difficult to cure)
- If association of other *Dosha*[49] along with vitiated *Vata* is considered to be *Sadhya* (easily curable)
- If the *Pakshaghata* is manifested due to *Dhatu Kshaya*[50], then such type of *Pakshaghata* is *Asadhya* (incurable) in

---

[42] This type of clinical presentation is seen in the patients of hemiparesis or hemiplegia. The lesions present in midcervical spinal cord and above are responsible for this type of clinical presentation. The presence of other associated features helps in the localization of the lesion.
- Language disorders, cortical sensory disturbances, cognitive abnormalities, disorders of visual-spatial integration, apraxia or seizures reflect a cortical lesion.
- Homonymous visual field defects reflect either a cortical or a subcortical hemispheric lesion.
- A pure motor hemiparesis of the face, arm or leg is often due to a small, discrete lesion in the posterior limb of internal capsule, cerebral peduncle or upper part of pons.
- Crossed paralysis consisting of ipsilateral cranial nerve signs and contralateral hemiparesis implies the diagnosis of brainstem lesions.
- The absence of cranial nerve signs or facial weakness suggests that a hemiparesis is due to a lesion in the high cervical spinal cord, especially if associated with ipsilateral loss of proprioception and contralateral loss of pain and temperature sense (Brown Sequard syndrome).

[43] This is considered to be neuropathic pain. This is caused by damage to the brain's pain processing pathways, rather than because of injury. It is also called central post stroke pain (CPSP). This type of pain occurs more often when sensation is reduced after a stroke. The brain is used to receiving normal sensory inputs, and when it doesn't, the brain itself produces painful sensations.
- CPSP may feel like burning, stabbing, pricking or numbness on the skin. It mostly occurs on stroke affected side of the body. Often, this pain is made worse if affected part is touched or moved or affected part is placed in water. CPSP may start days, months or years after the manifestation of stroke.

[44] This may be observe in the patient who has attained cerebral oedema either due to ischemia or haemorrhage. This may also be in the state of electrolyte imbalance.

[45] This can be attributable to either neuropathic pain or developed due to manifestation of contractures.

[46] This can be attributable to either dysphasia (where the lesion seen in brain) or dysarthria (where the lesion is seen in muscles of articulations of speech).

[47] Pathological events of cerebrovascular accidents (CVA) or strokes are initially the person will not have development of UMN signs and at that time, the person will have flaccidity which mimics the features of spinal shock. In due course of time, the person will have UMN signs.

[48] The term Vata dominant Pakshaghata refers to the duration of the illness is prolonged. During this period, adequate nutrition to the main affected area will be less, unless blood supply to the afflicted part of the brain takes place within a period of 4 minute. This is associated with the presence of increased UMN signs such as hypertonia, hyperreflexia, development of contractures etc.

[49] This can be observed in the initial phase of cerebrovascular accident wherein the person may have either sensory impairment such as burning sensation or heaviness of the affected body part. This may suggest the involvement of Pitta or Kapha along with vitiated Vata Dosha in the body. This implies the duration of the illness is shorter when compared to the Pakshaghata of vitiated Vata Dosha only. Hence, this type of association of Dosha, i.e. Samsargaja Dosha state is easily curable.

[50] Ca.Ci. – 28/59
Chakra, Ca.Ci. -28/59
As per Charaka, Vatavyadhi is manifested due to two different mechanisms – Avarana and Dhatukshaya. In most of the occasions, Avarana occurs because of Santarpana type of causes and Dhatukshaya occurs because of Apatarpana type of causes. Chakrapani opines Dhatukshaya as Sara Kshaya i.e. loss of essential nutrients from the body.
- As per current understanding, whenever there is deficiency of nutrients either due to poor absorption or due to poor circulation, there will be deficiency of essential macronutrients (carbohydrates, proteins, fats) and micronutrients (sodium, potassium and calcium ions) and water loss.
- Carbohydrate, one of the essential macronutrient, electrolytes (sodium, potassium, calcium) and water is necessary for almost all activities of skeletal, smooth and cardiac muscles and all kinds of neuronal function. When there is deficiency of these substances, naturally

nature

## Kampavata

सर्वाङ्गकम्पः शिरसो वायुर्वेपथुसंज्ञकः। Ma.Ni. – 22/74

*Kampavata* is the spectrum of diseases where the individual may develop involuntary movements[51] in whole body or involuntary movement of the head. It is also being termed as *Vepathu*. This is manifested in the individual due to the vitiation of *Vata Dosha* in the body. As per *Madhukosha* commentary, involuntary movement may be observed in the upper and lower limbs altogether or separately. It can be observed as unilateral or bilateral presentation. When we speak about the *Amshamsha Kalpana* of *Dosha*, it is the increase of *Chala* (mobile) quality of *Vata Dosha* is seen during the progression of the disease.

## Gridhrasi

स्फिक्पूर्वी कटिपृष्ठोरुजानुजङ्घापदं क्रमात्।
गृध्रसी स्तम्भरुक्तोदैर्युक्वाति स्पन्दते मुहुः॥56॥
बाताद्वातकफात्तन्द्रागौरवारोचकान्विता।
Ca.Ci. – 28/56,57; Ma.Ni. – 22/54

डपातंज्ञायां भवेत्तोदो देहस्यापि प्रवकता ( ? )।
जानुकट्पुरुसंधीनां स्फुरणं स्तब्धता भृशम्॥55॥
वातश्लेप्मोद्भवायां तु निमित्तं वह्निमार्दवम्।
तन्द्रामुखप्रसेकश्च भक्तद्वेषस्तथैव च॥56॥ Ma.Ni. – 22/55,56
पाणीप्रत्यङ्गुलीनां तु कण्डरा याऽनिलार्दिता॥
सनोः क्षेपं निगृह्णीयाद् गृधेसीति हि सा स्मृता॥ Su.Ni. – 1/74

- *Vitiated Vata Dosha* either singly or associated with *Kapha Dosha* will be responsible for the manifestation of the symptoms of Gridhrasi[52].
- This disease is characterised by stiffness of the lower limb and severe pain commences from lower back radiating downwards through buttocks, thighs, knees, calves and feet.
- The discomfort is experienced intermittently
- When there is association of *Kapha Dosha*, the disease is characterised by discomfort of *Vataja Gridhrasi* along with drowsiness, heaviness of the lower part of the body and tastelessness.
- There will be bending of the body due to the radiation of the pain to the lower limb.
- As per *Madhava Nidana*, there will loss of appetite in case of *Vatakaphaja Gridhrasi*.

The person is unable to lift the lower limb without bending the knees.

## Vishvachi

तलप्रत्यङ्गुलीनां तु कण्डरा बाहुष्पृष्ठतः॥
बालोः कर्मक्षयकरी विश्यांचीति हि सा स्मृता॥75॥ Su.Ni. – 1/75
तैलं प्रत्यङ्गुलीनां या फण्डरा बाहुपृष्ठतः।
बीडुचेष्टापहरणी विश्वाची नाम सा स्मृता॥44॥ A.Hr.Ni. – 15/44

- This disease[53] is mainly caused by vitiation of *Vata Dosha* in the upper limb.
- In this, *Kandara* of palm, fingers, arm and shoulder of upper limb is afflicted
- As per *Dalhana*, the clinical features of this disease is similar to the pain of Gridhrasi of lower limb.
- The person will be having pain observed in the neck radiating to whole upper limb till fingers.

---

**G K**

the person may have poor neuronal function and that too, in a person who is suffering from Pakshaghata, adequate supply of these elements is necessary, which is hampered in the patients of Pakshaghata, hence such patients of Pakshaghata is incurable in nature.

[51] Whenever involuntary movements observed in the human body, exact distribution and type of the involuntary movement must be recorded. The following are different names of involuntary movements named on the specific patterns observed in them.
- Chorea: repetitive, jerky movements which are irregular, spontaneous, purposeless and may occur anywhere in the body, precipitated by emotion and voluntary effort and disappears during sleep.
- Athetosis: peculiar, slow snake charming movements seen chiefly affecting wrists and fingers. Flexion and extension are the movements observed in this type.
- Hemiballismus: a swinging movement of violent nature of arm and leg of great amplitude at shoulder and hip, but affected limbs are flaccid.
- Tics and habit spasms: these are difficult to distinguish from chorea. Here, the movements are purposive. Some are simple such as shrugging shoulders, blinking eyes and some are complex such as frequent uncontrollable repetition of same words or sentence. These movements may go on for longer duration than chorea i.e. months without much variation in intensity.
- Tremors: these may occur due to metabolic derangement, alcoholism. Tremors of neurological origin are of 2 kinds: static and action
    - o Static tremor: relatively independent of movement e.g. 3-5/ second course tremor in case of parkinsonism; first affects index and thumb of one hand, followed by flexion-extension of wrist followed by pronation – supination of forearm.
    - o Action tremor: this is also called intention tremor, seen in ipsilateral cerebellar lesion.
- Myoclonus: a rare type consists of sudden shock like contraction producing recurring muscle jerks.

[52] This is the spectrum of the diseases where the person will be having the presence of pain in the lower limb. This type of clinical feature is seen in the patients of lumbar spondylosis where degenerative lesions are compressing the spinal nerves or in the patients suffering from intervertebral disc prolapse in the lumbar region or in the conditions where increased intraspinal pressure such as intraspinal tumours are seen. The pain gets worsened on coughing, sneezing or straining for defaecation or any maneuvers which increase the intraspinal pressure.

[53] This is the spectrum of the diseases is responsible for the presence of pain in the upper limb. This type of clinical feature is seen in the patients of cervical spondylosis or the conditions where increased intraspinal pressure is seen such as intervertebral disc prolapse in cervical region, intraspinal tumour afflicting the cervical region etc. The pain gets worsened on coughing, sneezing or straining for defaecation or any maneuvers which increase the intraspinal pressure.

- This is associated with reduced functioning of the upper limb also.
- The combination of *Vishvachi* and *Gridhrasi* is called as *Khalli*. *Khalli* is characterised by pain, crippling and contracture of both upper and lower limbs.

## Panguta

वायुः कट्यां स्थितः सक्थ्नः कण्डरामाक्षिपेद्यदा।
खजस्तदा भवेजन्तुः पेङ्गः सनोद्वयोर्षधात्॥77॥ Su.Ni. – 1/77

- Vitiated *Vata Dosha* takes shelter in the *Kati* region and afflicts the *Kandara* of *Sakthi* (thigh) region and this is responsible for the loss of function of lower limb either one lower limb or both lower limbs[54].
- It can occur in one lower limb or both lower limbs.
- If the loss of strength in one lower limb is observed, it is being termed as *Khanja*[55].
- If the loss of strength of both lower limbs is observed, it is being termed as *Pangu*[56].

## Difference between Khanja and Gridhrasi

### Khanja Gridhrasi

- Complete loss of functioning of one limb occurs pain, restricted movement of the affected part of the body, no complete loss of functioning
- *Vata* dominant disease *Vata* or *Vata-Kapha* dominant disease
- No radiation of pain in the lower limb radiation of pain from buttock to lower limb

## To summarise

- To summarise the concept of *Snayugata Vata*, clinical features such as *Stambha* (stiffness), *Sankocha* (contractures), *Khalli* (muscular cramps), *Granthi* (nodular swellings), *Sphurana* (irregular pulsations) are being observed.
- *Stambha* can be observed if the illness is of short duration and if there is involvement of *Asthi* and *Sandhi* etc.
- *Sankocha* is observed in case of long standing illnesses associated with involvement of *Mamsa Dhatu* as well. *Khalli* is observed when there is extreme loss of electrolytes from the body.
- *Granthi* can be observed in case of involvement of myelin sheath. *Sphurana* can be observed in case of fasciculation which is one of the LMN signs observed in case of neurological deficit.

---

[54] Normal motor function involves muscle activity that is mediated by the activity of cerebral cortex, basal ganglia, cerebellum and spinal cord. Motor dysfunction in any of the level may lead to the presenting complaint of either reduced strength or complete loss of the strength on the affected part. In this occasion, it is the affliction of lower limbs is seen.

[55] This spectrum of the disease can be considered as monoparesis or monoplegia of one lower limb. This usually occurs due to the lower motor neuron disease which supplies lower limbs with or without associated sensory involvement. UMN weakness occasionally presents as monoparesis of distal or nonantigravity muscles. It can occur either suddenly or gradually.

- Acute monoparesis: If the weakness is predominantly in distal and nonantigravity muscles and not associated with sensory involvement or pain, focal cortical ischaemia is likely to be diagnosed.
    - Sensory loss and pain usually accompany acute lower motor neuron weakness; the weakness is commonly localized to a single nerve root or peripheral nerve within the limb but occasionally reflects plexus involvement.
    - If LMN weakness is suspected, or pattern of weakness is uncertain, the clinical approach begins with EMG and nerve ccondutction study.
- Subacute or chronic monoparesis: weakness and atrophy that develop over weeks or months are usually of LMN origin.
    - If they are associated with sensory symptoms, a peripheral cause (nerve, root or plexus is predicted. In the absence of such symptoms, anterior horn cell disease  is predicted. Here, EMG is performed to confirm the diagnosis.
    - If weakness is of UMN type, d discrete cortical (precentral gyrus) or cord lesion may be predicted, appropriate imaging is done to confirm the diagnosis

[56] This spectrum of the disease can be termed as paraparesis or paraplegia. Intraspinal lesion at or below upper thoracic spinal level, as most
observed pathological event. But, paraparesis may also occur from lesions at other locations that disturb upper motory neurons (parasag-
itatal intracranial lesions); and lower motor neurons (anterior horn disorders, cauda equina syndromes due to involvement of nerve roots
derived from the lower spinal cord. It can occur either suddenly or gradually.

- Acute paraparesis is little bit difficult to diagnose initially due to spinal cord disease if the lower limbs are having flaccidity and areflexia.
    - Sensory loss in the legs with an upper level on the trunk; a dissociated sensory loss suggestive of a central cord syndrome; or exag-
    gerated reflexes in the legs with normal reflexes in the arms.
    - Compressive lesions (epidural tumour, abscess or haematoma), but also a prolapsed intervertebral disc and vertebral involvement
    by malignancy or infection, transverse myelitis are some of the acute causes of paraparesis.
    - Diseases of anterior cerebral artery ischaemia produce acute paraparesis with disturbed shoulder shrugging, superior sagittal
    sinus or cortical venous thrombosis and acute hydrocephalus may also lead to acute paraparesis. If upper motor neuron signs are
    associated with drowsiness, confusion, seizures or other hemispheric signs, MRI brain should be done to confirm the diagnosis.
    - Paraparesis may result from cauda equina syndrome (e.g. following trauma to the low back, a midline disc herniation or intraspinal
    tumour).
- Chronic paraparesis with spasticity is caused by UMN disease. When there is associated with lower limb sensory loss with sphincter
involvement, a chronic spinal cord disorder is likely. If MRI of spinal cord is normal, then MRI brain has to be done.
    - When hemispheric signs are present, then a parasagittal meningioma or chronic hydrocephalus is suspected.

### Key summary of the chapter

- Akshepaka is the condition where involuntary movements are seen. This is categorized under Vatavyadhi. It can be attributable to epilepsy due to organic lesion (structural lesion in the brain). Apasmara is the spectrum of diseases where no organic lesion is observed after elaborate evaluation of the patient.
- Apatanaka and Apatantraka are categorized under Hridroga as per Caraka.
- Dandapatanaka or Dandaka is attributable to the state of status epilepticus.
- Ardita is the condition where the person will have manifestation of the disease in term of Vega (episodes). Pakshaghata is the spectrum of the diseases, where clinical manifestations are observed continuously without any symptom free period.
- Antarayama and Bahirayama are the clinical manifestations where bending of the body parts are seen. These can be attributable to decorticate and decerebrate lesions respectively.
- Gridhrasi is the disease where Vata Dosha vitiation is observed, where the person may have appearance of the pain in the buttock region, radiates to whole lower limb.
- Vishwachi is the spectrum of the disease, where Vata Dosha vitiation is being noted, where the clinical presentation is restricted to upper limb.

### Self-Assessment: Questions for Reviews

#### Long essay questions

- Explain Ardita
- Describe Pakshaghata
- Explain Antarayama and Bahirayama

#### Short essay questions

- Explain Akshepaka
- Describe Apatantraka
- Explain Gridhrasi
- Write the differences between Khanja and Gridhrasi

#### MCQs

**1. Vata and Vatakaphaja varieties of the disease are found in**

a. Vishwachi; b. Gridhrasi;
c. Pakshaghata; d. Ardita

*Answer*: (b)

**2. In Khanja, which of the following is involved?**

a. One upper limb;
b. One lower limb;
c. Both upper limbs;
d. Both lower limbs

*Answer*: (b)

**3. Which of the following is appropriate answer in the patient of Vishwachi?**

a. The patient will have radiation of the pain to the any one of the lower limb;
b. Pain radiates to any of the upper limb;
c. Pain radiates in both upper and lower limbs;
d. Pain radiates to one side of upper and lower limb

*Answer*: (b)

**4. The type of examination done to assess consciousness of the patient is**

a. EMV score;
b. Apgar score;
c. MRC score of motor system;
d. Sensory system examination

*Answer*: (a)

**5. Which of the following disease is having the poor prognosis of the disease after 3 years of duration of the illness?**

a. Ardita; b. Pakshaghata;
c. Akshepaka; d. Apatanaka

*Answer*: (a)

#### Chapter resources

- Charaka Samhita Chikitsa Sthana – 28th chapter: Vatavyadhi Chikitsa Adhyaya
- Sushruta Samhita Nidana Sthana – 1st chapter: Vatavyadhi Nidana Adhyaya
- Madhava Nidana: 22nd chapter: Vatavyadhi Nidana Adhyaya
- Ashtanga Hridaya Nidana Adhyaya: 15th chapter: Vatavyadhi Nidana Adhyaya
- Ashtanga Sangraha Nidana Adhyaya: 15th chapter: Vatavyadhi Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans,

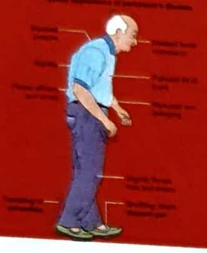
12th edition, Butterworth-Heinemann Publishers, 1997

- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- https://www.hopkinsmedicine.org/health/conditions-and-diseases/status-epilepticus#:~:text=If%20you%20have%20epilepsy%2C%20you,episodes%20is%20called%20status%20epilepticus.
- https://my.clevelandclinic.org/health/diseases/24333-eclampsia
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7779914/#:~:text=Risk%20factors%20for%20stroke%20during,the%20postpartum%20period%20(3).
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5560002/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2117604/#:~:text=The%20observation%20of%20pathological%20yawning,lesions%20affecting%20the%20MCA%20territory.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4914489/#:~:text=The%20normal%20average%20cerebral%20blood,(%20100%20g%20min%20)%20%5D.
- https://www.ninds.nih.gov/health-information/disorders/bells-palsy
- https://www.practo.com/health-wiki/bells-palsy-symptoms-complications-and-treatments/255/article
- https://www.ncbi.nlm.nih.gov/books/NBK526108/#:~:text=Hemifacial%20spasm%20(HFS)%20is%20a,peripheral%20(neuromuscular)%20movement%20disorder.
- https://nashvillehemifacialspasm.com/hemifacial-spasm-causes-and-symptoms/
- https://emedicine.medscape.com/article/835286-overview?form=fpf
- https://www.ncbi.nlm.nih.gov/books/NBK526119/#:~:text=The%20sensory%20component%20provides%20innervation,component%20of%20the%20facial%20nerve.
- https://www.msdmanuals.com/en-in/professional/neurologic-disorders/neuro-ophthalmologic-and-cranial-nerve-disorders/conjugate-gaze-palsies#:~:text=In%20palsies%20due%20to%20stroke,called%20the%20frontal%20eye%20fields).
- https://strokefoundation.org.au/what-we-do/for-survivors-and-carers/after-stroke-factsheets/pain-after-stroke-fact-sheet#:~:text=CPSP%20may%20feel%20like%20burning,or%20years%20after%20your%20stroke.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6312177/#:~:text=However%2C%20there%20is%20increasing%20evidence,the%20risk%20of%20cerebrovascular%20events.
- https://medlineplus.gov/ency/article/003300.htm#:~:text=Decorticate%20posture%20is%20an%20abnormal,and%20held%20on%20the%20chest.
- https://medlineplus.gov/ency/article/003299.htm
- https://medical-dictionary.thefreedictionary.com/opisthotonic

***

CHAPTER

42



# Common Neurological and Spine Disorders

**Learning Objectives**

- ⇨ To have a brief understanding about neurological and spine disorders
- ⇨ To know the clinical features of parkinson's disease, stroke, Bell's palsy, motor neuron disease (MND), transverse myelitis, epilepsy (organic)
- ⇨ To know the clinical features of common spine disorders – lumbago sciatica syndrome, brachial neuralgia, cervical spondylosis, lumbar spondylosis
- ⇨ To perform the necessary physical examinations in above mentioned diseases
- ⇨ To order the necessary laboratory investigations and their interpretation

## Parkinson's Disease

Parkinson's disease is a idiopathic, slowly progressive, degenerative disease of central nervous system (CNS) characterized by resting tremor, muscular rigidity, slow and hypokinesia (slow and decreased movement) and postural instability.

Diagnosis done by clinical evaluation. Parkinsonism[1] refers to the symptoms that are similar to those of Parkinson's disease, but caused by another condition.

- This disease affects the individuals with age of ≥ 65 years. Rarely, this disease afflicts the children and adolescents.
- The disease is produced due to the defect observed in the substantia nigra of the midbrain where in depletion in the production of dopamine is present.
- This disease is characterized by the presence of symptom triads – resting tremor, bradykinesia or hypokinesia and muscular rigidity[2].

**Typical appearance of parkinson's disease**

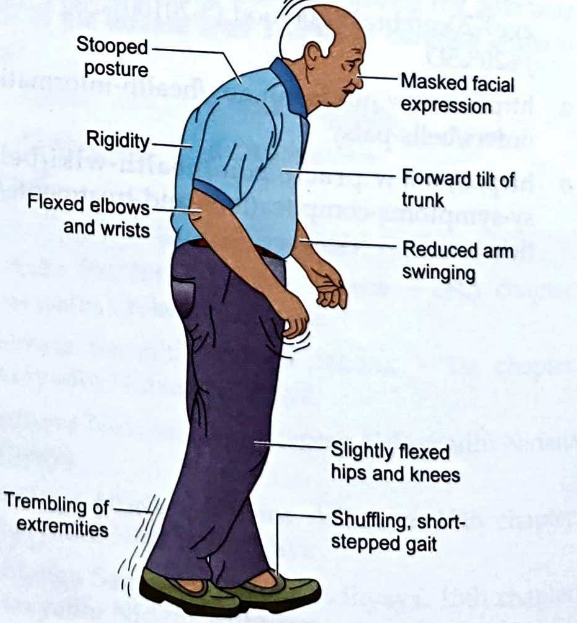


**Figure 167:** Parkinson's disease

---

GK

[1] Parkinsonism may result from adverse drug reactions, disorders other than Parkinson's disease such as amyotropic lateral sclerosis (ALS), cerebrovascular disease (CVA), brain tumours present near basal ganglia, repeated traumatic brain injury, hydrocephalus, hypoparathyroidism, methyldopa overdosage, resperpine adverse drug reaction, carbon monoxide poisoning, methanol poisoning, manganese poisoning.

[2] Assessment of rigidity comes in examination of nervous system. This is coming under motor system examination. The term rigidity refers to increased tone of the muscles which is seen throughout the movement of the limb. Spasticity is another abnormal muscle tone which is seen for a short period of time, not throughout the movement.

- Rigidity is of two types. Cogwheel rigidity and lead pipe rigidity. The term cogwheel refers to the movement that diminishes in jerky steps due to tremor as well as rigidity. Lead pipe rigidity is observed without tremor.
- Cogwheel rigidity is seen in upper limbs and lead pipe rigidity is seen in lower limbs of the patients of Parkinson's disease.

- **Resting tremor:** slow and coarse tremor, maximal at rest, lessening during movement and almost absent during sleep; amplitude increased by emotional tension or fatigue; often involving the wrist and fingers in movements similar to those used to manipulate small objects or pills (pill rolling movements); usually hands, arms and legs are most affected in that order. The jaw and tongue may also be affected, but not the voice. Tremor may become less prominent, as the disease progresses.
- **Muscular rigidity:** This may develop without tremor in many patients. When a clinician moves a rigid joint, sudden, rhythmic jerks due to variations in the intensity of the rigidity occur, producing a ratchet like effect (cogwheel rigidity).
- **Bradykinesia (hypokinesia):** The patient may have slower movements as rigidity progresses. Movement also becomes decreased and later it becomes difficult to initiate the movement (akinesia).

- Rigidity and hypokinesia may contribute to muscular aches and sensations of fatigue. The individual suffering from this disease will have expressionless face or masklike face with open mouth, drooling and reduced blinking of the eyes. Early on the patient may appears depressed because of lack of facial expression and slowed and reduced movements of the body. Speech becomes hypophonic, with characteristic monotonous, stuttering dysarthria.
- Hypokinesia and impaired control of distal musculature leads to micrographia (writing in very small letters) and make the daily activities very difficult. Without warning, voluntary movements of the patient including walking may suddenly halt (freezing).
- Postural instability develops, resulting in gait abnormalities which is termed as short shuffling gait (Parkinsonian gait or festinating gait).
- In this, patient will have difficulty in starting the walking, burning and stopping; the becomes shuffling with short steps, and arms are flexed to the waist and do not swing with the stride. Steps may inadvertently quicken, and patients may break into a run to keep from falling (festination).
- A tendency to fall forward (propulsion) or backward (retropulsion) when the centre of the gravity is displaced results from the loss of postural instability. Posture becomes stooped.
- Dementia may occur.
- Diagnosis is clinical. This disease is suspected in patients with characteristic unilateral resting tremor, decreased movement or rigidity.

## Stroke

The term stroke is also known as cerebrovascular accident (CVA). These disorders are heterogenous group of disorders involving sudden, focal interruption of cerebral blood flow that causes neurological deficit. Ischaemia in the cerebral region (ischaemic stroke in 85% of the patients) and intracranial haemorrhage (haemorrhagic stroke in 15% of the patients) are the two mechanisms by which CVA manifests in the individuals. This disease has to be differentiated from seizures, intracranial tumour, migraine and metabolic encephalopathy. Symptoms observed in the patient depends upon the site of the lesion, size of the lesion. Abrupt onset of numbness, weakness or paralysis of the contralateral limbs and face; aphasia; confusion are observed during the progression of the disease. Diagnosis is done by CT scan of the head. CBC, lipid profile, ECG etc will help in predicting the prognosis of the disease.

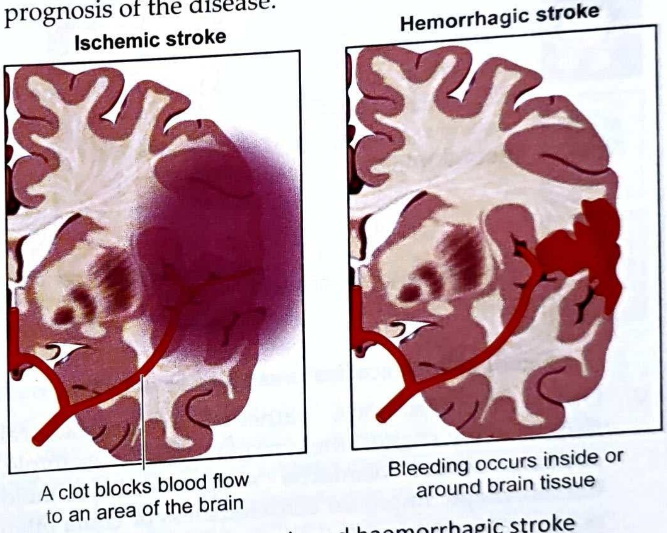

Ischemic stroke
Hemorrhagic stroke
A clot blocks blood flow to an area of the brain
Bleeding occurs inside or around brain tissue

**Figure 168:** Ischemic and haemorrhagic stroke

- Previous history of cardiac disease or carotid atherosclerosis or intracerebral aneurysms are the main reasons for the development of CVA. Prior history of stroke (TIA transient ischemic attack); history of stroke; family history of stroke; alcoholism; older age; male gender; hypertension; cigarette smoking; hypercholesterolemia; diabetes mellitus and use of certain drugs such as cocaine or amphetamines) are some of the risk factors for the development of stroke (CVA).
- Initial symptoms **(see Figure 169)** occur suddenly. Generally, they include numbness, weakness or paralysis of the contralateral limbs and face; aphasia; confusion; visual disturbances in one or both eyes.
- Neurological deficits reflect the area of the brain involved. Anterior circulation stroke typically causes unilateral symptoms. Posterior circulation stroke can cause unilateral or bilateral deficits and is more likely to affect consciousness, especially when the basilar artery is involved,

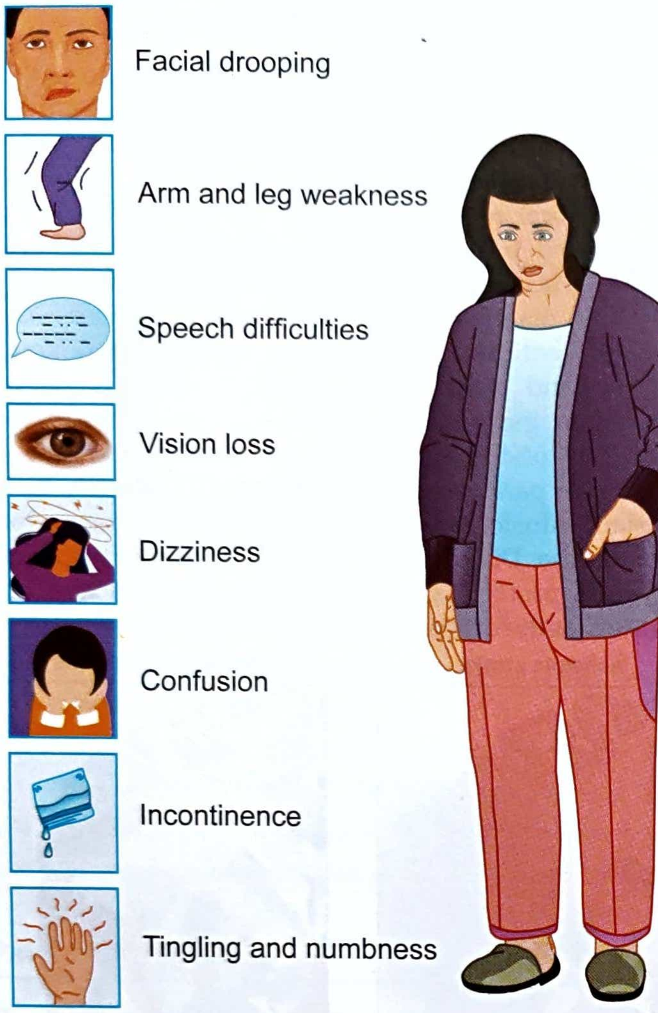


**Figure 169:** Clinical features of stroke or CVA

- Other manifestations, rather than neurological deficits, often suggest the type of stroke. For example, sudden, severe headache suggest subarachnoid haemorrhage. Impaired consciousness or coma often accompanied by headache, nausea, vomiting suggest increased intracranial pressure which can occur 48 to 72 hours after large ishaemic strokes.
- Complications of stroke (CVA) can include sleep disturbances; confusion; depression; incontinence; atelectasis; pneumonia and swallowing dysfunction which can lead to aspiration, dehydration or undernutrition. Immobility can lead to deep vein thrombosis in the lower limbs or pressure sores in the back or electrolyte imbalances.
- Based on the location of the affliction of artery, clinical symptoms may vary.
  - MCA (Middle cerebral artery) territory infarct: The patient may show contralateral hemiplegia, hemianaesthesia with or without homonymous hemianopia and aphasia. Occlusion of upper division results in contralateral hemiparesis with sensory deficit and expressive aphasia (Broca's aphasia), whereas Wernicke's aphasia is commonly seen with occlusion of lower division on the dominant side.
  - **ACA (Anterior cerebral artery) territory infarct:** Clinical features include sensory motor paralysis of the opposite lower extremity, with mild weakness of the opposite shoulder. Mental changes, rectal and urinary incontinence, gait disturbances, apraxia may be observed. Aphasia and hemianopia are never seen.
  - **PCA (Posterior cerebral artery) territory infarct:** Contralateral homonymous hemianopia is a significant finding and this results from infarction of the primary visual area, the central vision is frequently spared. Distorted vision, visual object agnosia, various forms of dyslexia and dysgraphia are being observed.
- Diagnosis is done by CT scan **(see Figure 170a)** head to determine the cause of cerebrovascular accident either for infarction or haemorrhage **(see Figure 170b).** Prognosis is determined by CBC, ESR, lipid levels and urine routine analysis.

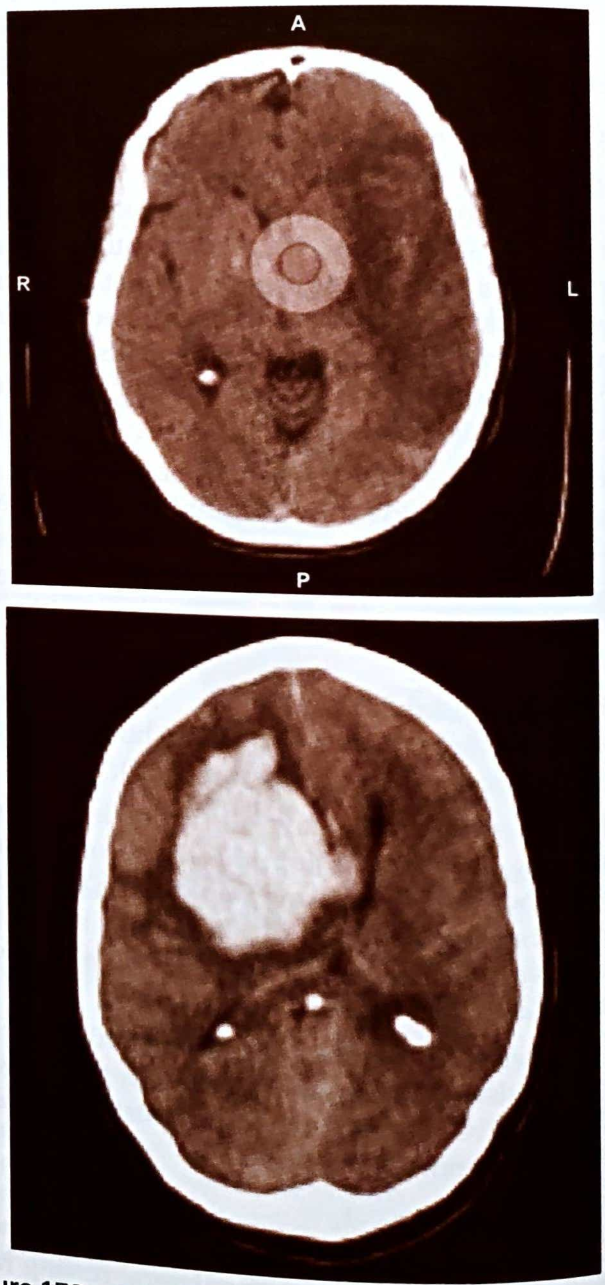


**Figure 170 a & b:** Diagnosis of ischemic and haemorrhagic stroke respectively

## Bell's Palsy

Bell's palsy is sudden, idiopathic, unilateral peripheral 7th cranial nerve palsy. Symptoms are hemifacial paralysis of the upper and lower face. There are no specific tests for the diagnosis of the disease.

- Cause is unknown, but the mechanism is presumably swelling of the 7th cranial nerve due to an immune or viral disorder. Herpes simplex infection may be the triggering factor for the manifestation of the disease.

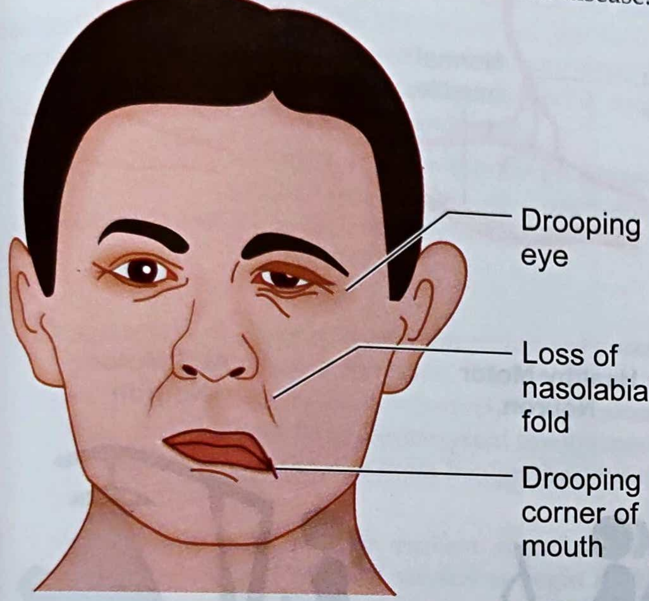


**Figure 171:** Bell's palsy

- Pain behind the ear precedes the facial paresis. Paresis, often with complete paralysis develops within 24 hours and usually maximal within 48 to72 hours. Patients may have numb or heavy feeling in the face. The affected side becomes flat and expressionless; ability to wrinkle the forehead, blink and grimace is limited or absent. In severe cases, palpebral fissure widens and the eye does not close, often irritating the conjunctiva.
- Sensory examination is normal, but the external auditory canal and a small patch behind the ear (over mastoid region) may be painful to touch. If the nerve lesion is proximal to the geniculate ganglion, excess salivation, taste and lacrimation may get impaired.
- Diagnosis is by clinical evaluation. Middle ear or mastoid infection has to be excluded. Other diseases to be excluded include sarcoidosis, petrous bone fractures, chronic meningitis, cerebellopontine tumours. Other disorders may show the clinical symptoms slowly when compared to the features of Bell's palsy.
- Prognosis of Bell's palsy is determined by the extent of nerve damage. If some function of facial nerve remains, full recovery typically occurs within several months.
- Nerve conduction studies and electromyography may help in predict the outcome of the disease. The likelihood of complete recovery after total paralysis is 90% if nerve branches in the face retain normal excitability. Chronic disuse of the facial muscles may lead to contractures.

## Motor Neuron Disease

Motor neuron disease **(see Figure 172)** are characterized by steady, relentless, progressive degeneration of corticospinal tracts, anterior horn cells, bulbar motor nuclei or a combination. Symptoms vary in severity and may include muscle weakness and atrophy, fasciculations, emotional lability and respiratory muscle weakness. Diagnosis involves nerve conduction studies, electromyography and exclusion of other disorders via MRI and laboratory investigations.

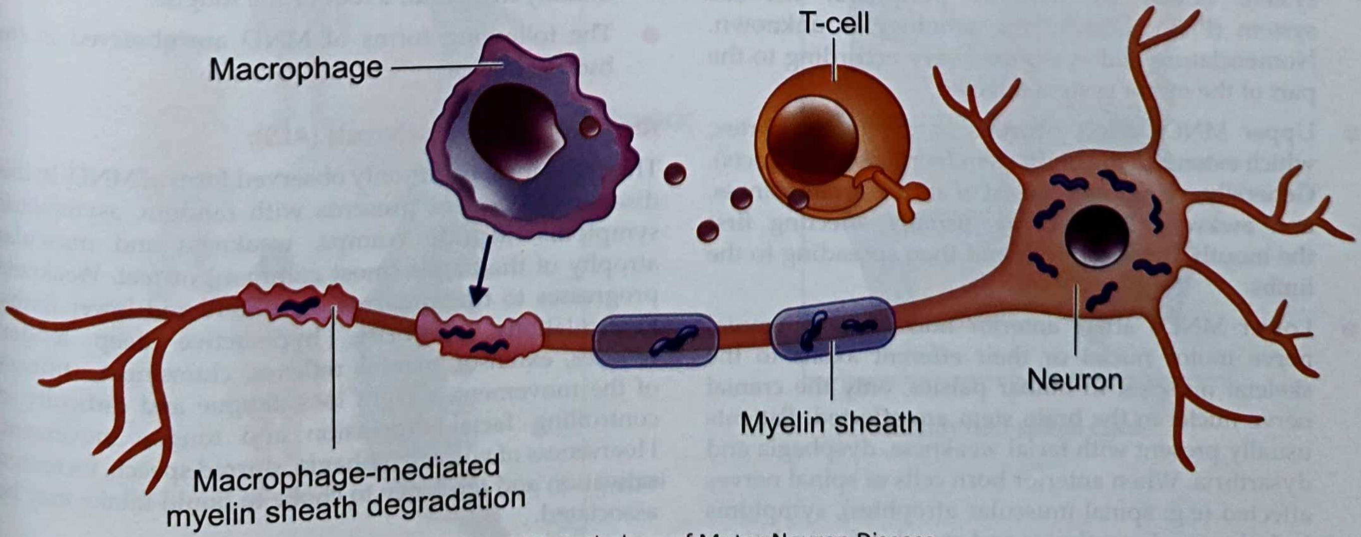


**Figure 172:** Pathology of Motor Neuron Disease

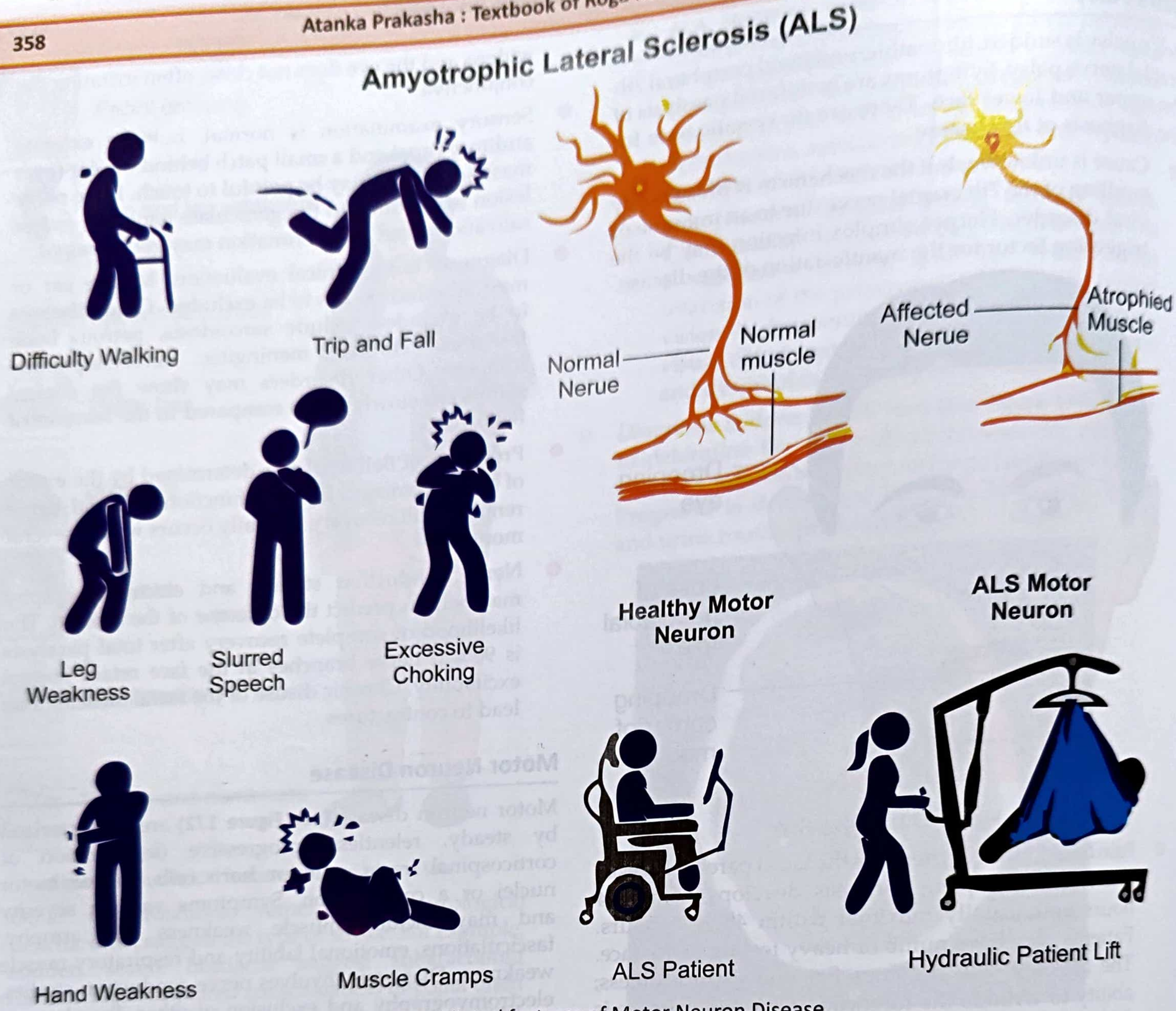

Amyotrophic Lateral Sclerosis (ALS)
Difficulty Walking
Trip and Fall
Normal Nerue
Normal muscle
Healthy Motor Neuron
Affected Nerue
Atrophied Muscle
ALS Motor Neuron
Leg Weakness
Slurred Speech
Excessive Choking
Hand Weakness
Muscle Cramps
ALS Patient
Hydraulic Patient Lift

**Figure 173:** Clinical features of Motor Neuron Disease

- MNDs **(see Figure 173)** may involve central nervous system (CNS) as well as peripheral nervous system (PNS). Usually the aetiology is unknown. Nomenclature and symptoms vary according to the part of the motor system affected.
- Upper MNDs affect neurons of the motor cortex, which extend to the brain stem (corticobulbar tracts). Generally, symptoms consist of stiffness, clumsiness, and awkward movements, usually affecting first the mouth, throat or both and then spreading to the limbs.
- Lower MNDs affect anterior horn cells or cranial nerve motor nuclei or their efferent axons to the skeletal muscles. In bulbar palsies, only the cranial nerve nuclei in the brain stem are affected. Patients usually present with facial weakness, dysphagia and dysarthria. When anterior horn cells of spinal nerves affected (e.g. spinal muscular atrophies), symptoms include muscle weakness and atrophy, fasciculations (visible muscular twitches), and muscle cramps, initially in a hand, a foot or the tongue.
- The following forms of MND are observed in the human beings.

**Amyotropic lateral sclerosis (ALS):**

This is the most commonly observed form of MND. In this disease, the patient presents with random, asymmetric symptoms, include cramps, weakness and muscular atrophy of the hands (most common) or feet. Weakness progresses to the forearms, shoulders and lower limbs. Fasciculations, spasticity, hyperactive deep tendon reflexes, extensor plantar reflexes, clumsiness, stiffness of the movement, weight loss, fatigue and difficulty in controlling facial expression and tongue movement. Hoarseness of voice, dysphagia, slurred speech, increased salivation and tendency to choke to liquid intake may be associated.

- Death is caused by failure of respiratory muscles;

50% of the patients die within 3 years of onset; 20% of the patients will have life span for 5 years and 10% of the patients will have life span of 10 years. Survival of the patient for > 30 years is rare.

### Progressive bulbar palsy

- The muscles innervated by cranial nerves and corticobulbar tracts are predominantly affected, causing progressive difficulty in chewing, swallowing, and talking, nasal voice; reduced gag reflex; fasciculations, weak movement of the facial muscles and tongue; and weak palatal movement. A pseudobulbar effect, with emotional lability may occur if the corticobulbar tract is affected.
- Patients with dysphagia will have poor prognosis. Respiratory complications due to aspiration frequently result in death within 1 to 3 years.

### Progressive muscular atrophy

- In many cases, especially those with childhood onset, inheritance is autosomal recessive. This can occur at any age. Anterior horn cell involvement occurs alone or is more prominent than corticospinal involvement and progression tends to be more benign that that of other MNDs.
- Fasciculations may be the earliest manifestation. Muscle wasting and marked weakness begin in the hands and progress to the arms, shoulder and legs, eventually become generalized. Patients may survive ≥ 25 years.

### Primary lateral sclerosis and progressive pseudobulbar palsy

- Muscle weakness and signs of distal motor weakness gradually increase, affecting the limbs in primary lateral sclerosis and lower cranial nerves in progressive pseudobulbar palsy. Fasciculations and muscle atrophy may follow many years later.
- Diagnosis is done by elctrodiagnostic tests, MRI of brain laboratory investigations to rule out other diseases. Tests include CBC, electrolytes, creatinine kinase, thyroid function tests to rule out other clinical conditions.

## Transverse Myelitis

Transverse myelitis **(see Figure 174)** is acute inflammation of gray and white matter in one or more adjacent spinal cord segments, usually thoracic. Causes include multiple sclerosis, infections, autoimmune or postinfectious inflammation, vasculitis and certain drugs. Symptoms include bilateral motor, sensory and sphincter deficits below the level of the lesion. Diagnosis is done by MRI, CSF analysis and blood tests.

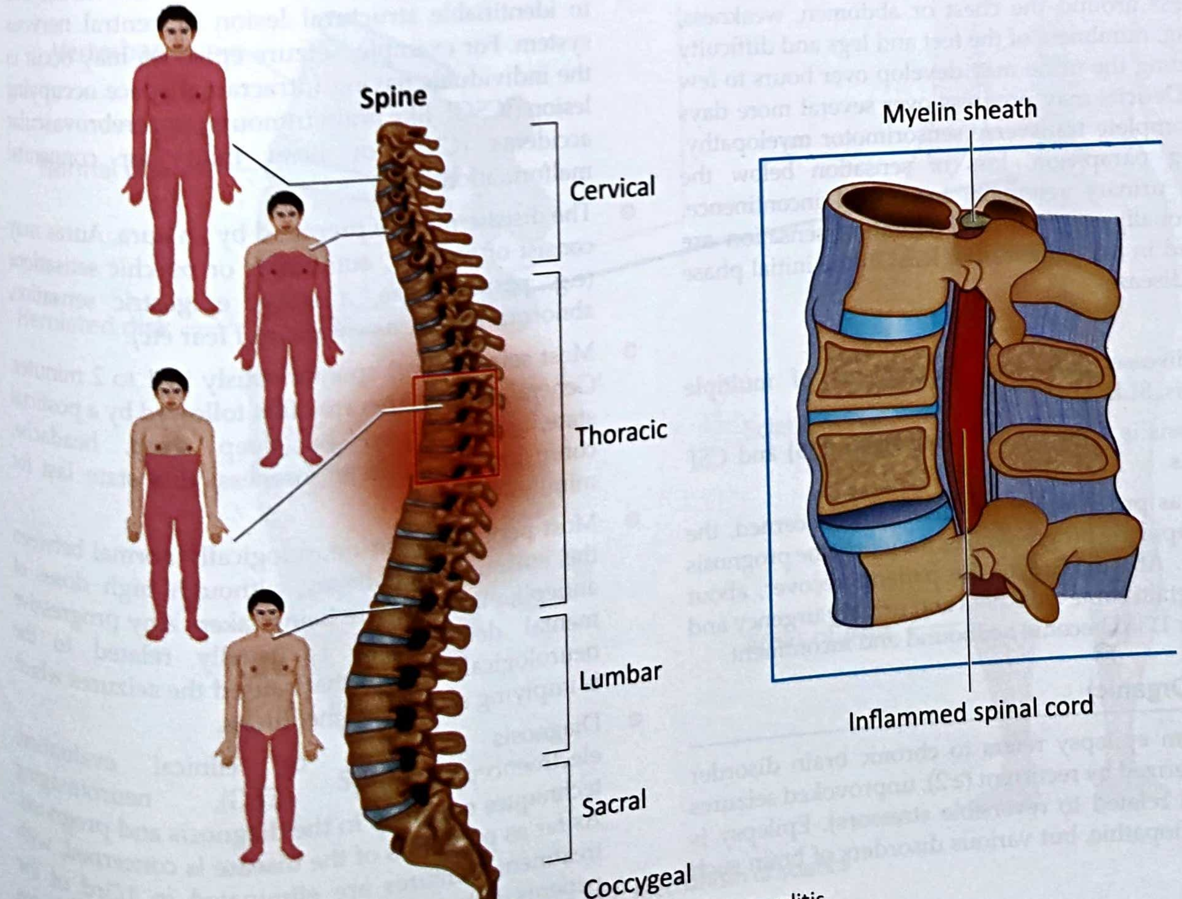


**Figure 174:** Transverse myelitis

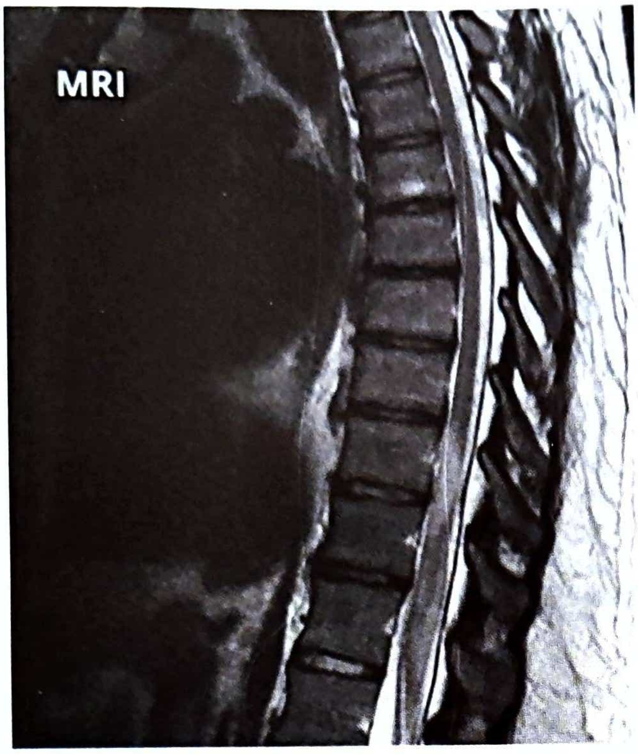


**Figure 175:** Diagnosis of transverse myelitis

- Probable causes include viral meningitis, tuberculosis, IV heroin administration or antiparasitic drugs or antifungal drugs, multiple sclerosis or vasculitis.
- Pain in the neck, back or head may occur. A band like tightness around the chest or abdomen, weakness, tingling, numbness of the feet and legs and difficulty in voiding the urine may develop over hours to few days. Deficits may progress over several more days to a complete transverse sensorimotor myelopathy, causing paraplegia, loss of sensation below the lesion, urinary retention and faecal incontinence. Occasionally, position and vibration sensation are retained in the patient or at least in the initial phase of the disease.
- This disease recurs in the patients of multiple sclerosis, SLE.
- Diagnosis is done by MRI **(see Figure 175)** and CSF analysis.
- As far as prognosis of the disease is concerned, the more rapid the progression is, the worse the prognosis will be. About 1/3rd of the patients recover, about 1/3rd retain some weakness and urinary urgency and another 1/3rd become bedbound and incontinent.

## Epilepsy (Organic)

- The term epilepsy refers to chronic brain disorder characterized by recurrent (≥ 2), unprovoked seizures (i.e. not related to reversible stressors). Epilepsy is often idiopathic, but various disorders of brain such as malformations, cerebrovascular accidents (CVA) or brain tumours can cause symptomatic epilepsy. Seizure is synonymously used for the epilepsy. It is defined as an abnormal, unregulated electrical discharge that occurs within the brain's cortical gray matter and transiently interrupts motor brain function.

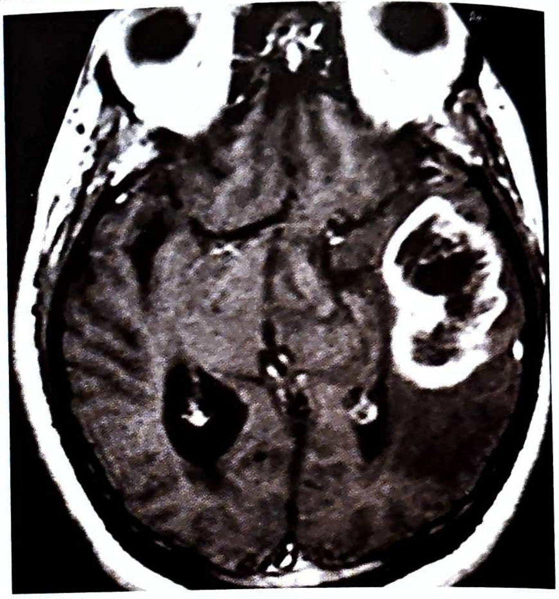


**Figure 176:** CT scan of organic epilepsy

- The term organic epilepsy refers to episode or episodes of epilepsy occurs in an individual due to identifiable structural lesion of central nervous system. For example, seizure episodes may occur in the individuals having intracranial space occupying lesion (ICSOL like brain tumours) or cerebrovascular accidents (CVA) or head injury or congenital malformations etc.
- The disease may be preceded by an aura. Auras may consist of sensory, autonomic or psychic sensations (e.g. paraesthesias, a rising epigastric sensation, abnormal smells, a sensation of fear etc).
- Most seizures end spontaneously in 1 to 2 minutes. Generalized seizures are often followed by a postictal state, characterized by deep sleep, headache, confusion and muscle soreness; this state last for minutes to hours.
- Most people appear neurologically normal between the episodes of epilepsy, although high doses of antiepileptic drugs are being taken. Any progressive mental deterioration is usually related to the neurological disorder that caused the seizures which is implying severity of the illness.
- Diagnosis is done by clinical evaluation; electroencephalogram (EEG), neuroimaging techniques may help in the diagnosis and prognosis. As far as prognosis of the disease is concerned, with treatment, seizures are eliminated in 1/3rd of the patients with epileptic seizures; frequency of seizures

is reduced by 50% in another 1/3rd of the patients. About 60% of patients whose seizures are well controlled by drugs can eventually stop the drugs and remain seizure free. Sudden unexplained death in epilepsy (SUDEP) is rare complication of unknown case of epilepsy.

## Lumbago Sciatica Syndrome

The term lumbago refers to lower back pain. The term sciatica **(see Figure 177)** refers to the pain along the sciatic nerve. It usually results from compression of nerve roots in the lower back. Common causes include intervertebral disc herniation, osteophytes and narrowing of spinal canal (spinal stenosis). Symptoms include pain radiating from lower back or buttocks to the lower limb. Diagnosis sometimes, involves MRI or CT scan.

- Sciatica is typically caused by nerve root compression, usually due to intervertebral disc herniation, bony irregularities or intraspinal tumours or abscesses. Compression may occur within the spinal canal or intervertebral foramen.
- Pain radiates along the course of the sciatic nerve, most often down the buttocks and posterior aspect of the leg to below the knee. The pain is typically burning, lancinating or stabbing. It may occur with or without low back pain. Coughing, sneezing, straining for defaecation or Valsalva maneuver may worsen the back pain due to disc herniation. The patient may also complain numbness and sometimes weakness in the affected lower limb.
- Nerve root compression can cause sensory, motor signs or reflex deficits (L5-S1 disc herniation may affect ankle jerk, L3-L4 disc herniation may affect knee jerk). Straight leg raising (SLR) test may cause pain that radiates down the leg when the leg is raised above 45°. Crossed SLR test is more specific for the diagnosis of sciatica.
- Diagnosis is by clinical evaluation and sometimes by MRI or CT scan. Sometimes, electrodiagnostic studies may help in the diagnosis.

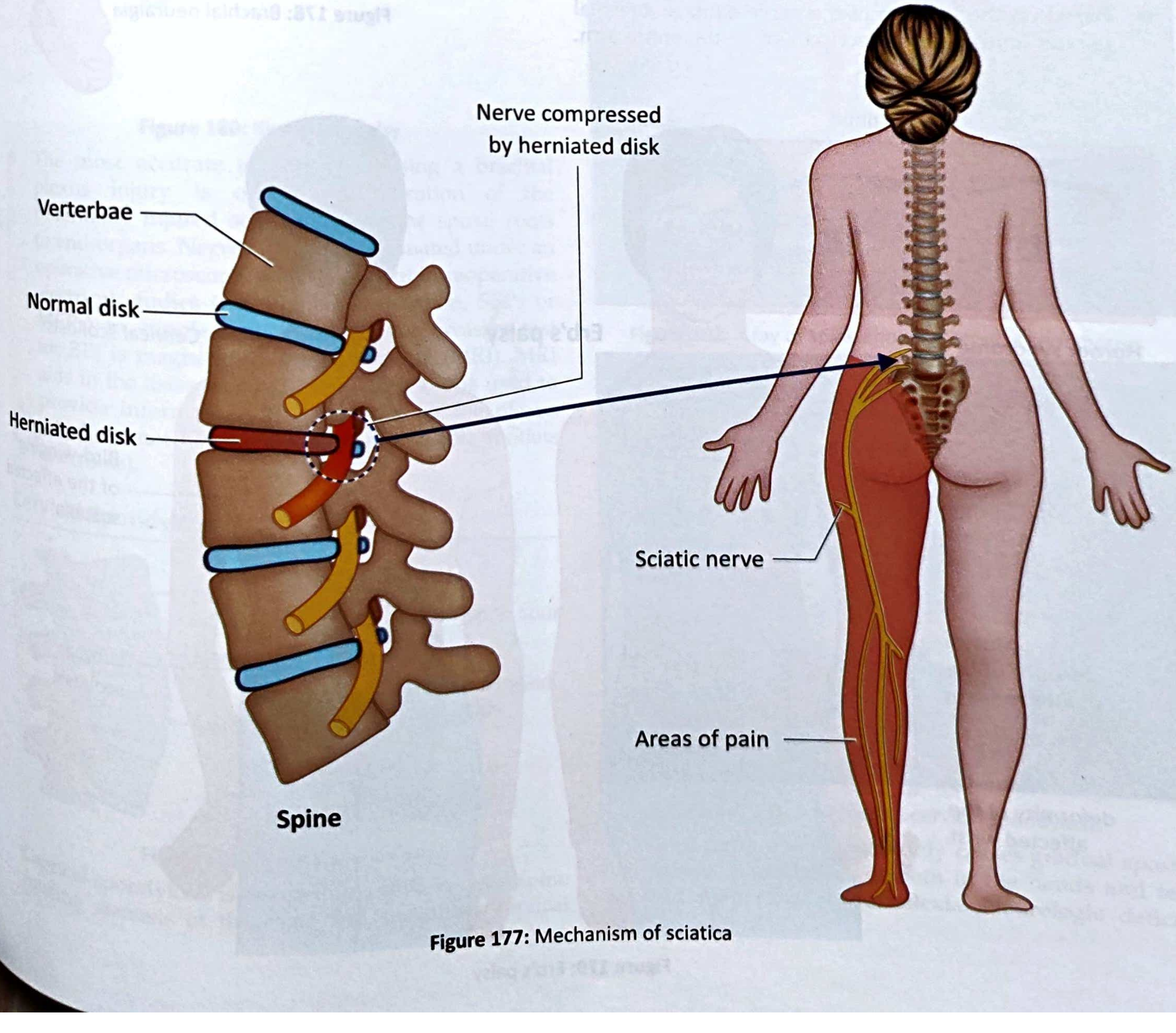


**Figure 177:** Mechanism of sciatica

## Brachial Neuralgia

The term brachial neuralgia refers to a characteristic clinical syndrome of abrupt, severe pain in the shoulder and upper arm, that is followed several weeks later by muscle weakness and profound muscle wasting. It is also known as brachial neuritis, brachial amyotrophy. This is often associated with preceding viral illness, vaccination or other immunological event. Affected muscles are most commonly supplied from C5/C6 segmental level, suggesting the involvement of upper trunk of brachial plexus, such as the long thoracic, axillary, suprascapular and anterior interosseus nerves.

- The condition is said to be manifested due to idiopathic aetiology or occurs as a result of shoulder injury or occurs as a result of fall from a height onto the side of the head or shoulder or as a result of shoulder dystopia in case of obstructed labour.
- **Clinical features (see Figure 178)** may include a limp or paralysed arm, lack of muscle control in the arm, hand and lack of feeling in the arm or hand.
- Based on the location of the nerve damage, brachial plexus injuries can affect part of or the entire arm. E.g. musculocutaneous nerve damage weakens elbow flexors, median nerve damage causes proximal forearm pain and paralysis of ulnar nerve causes weak grip and finger numbness. The cardinal signs of brachial plexus injury will have weakness in the arm, diminished reflexes and corresponding sensory deficits.

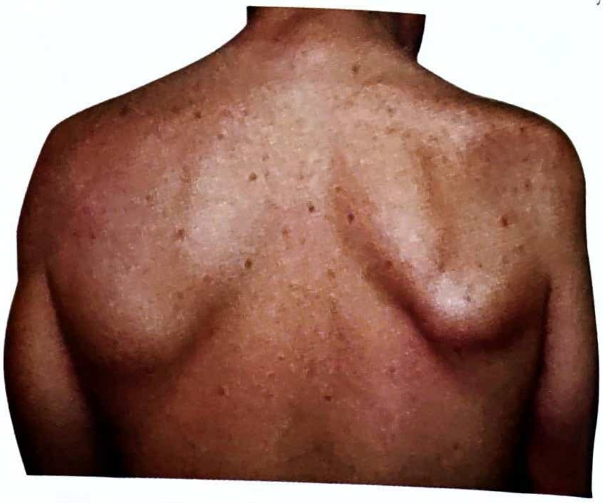


**Figure 178:** Brachial neuralgia

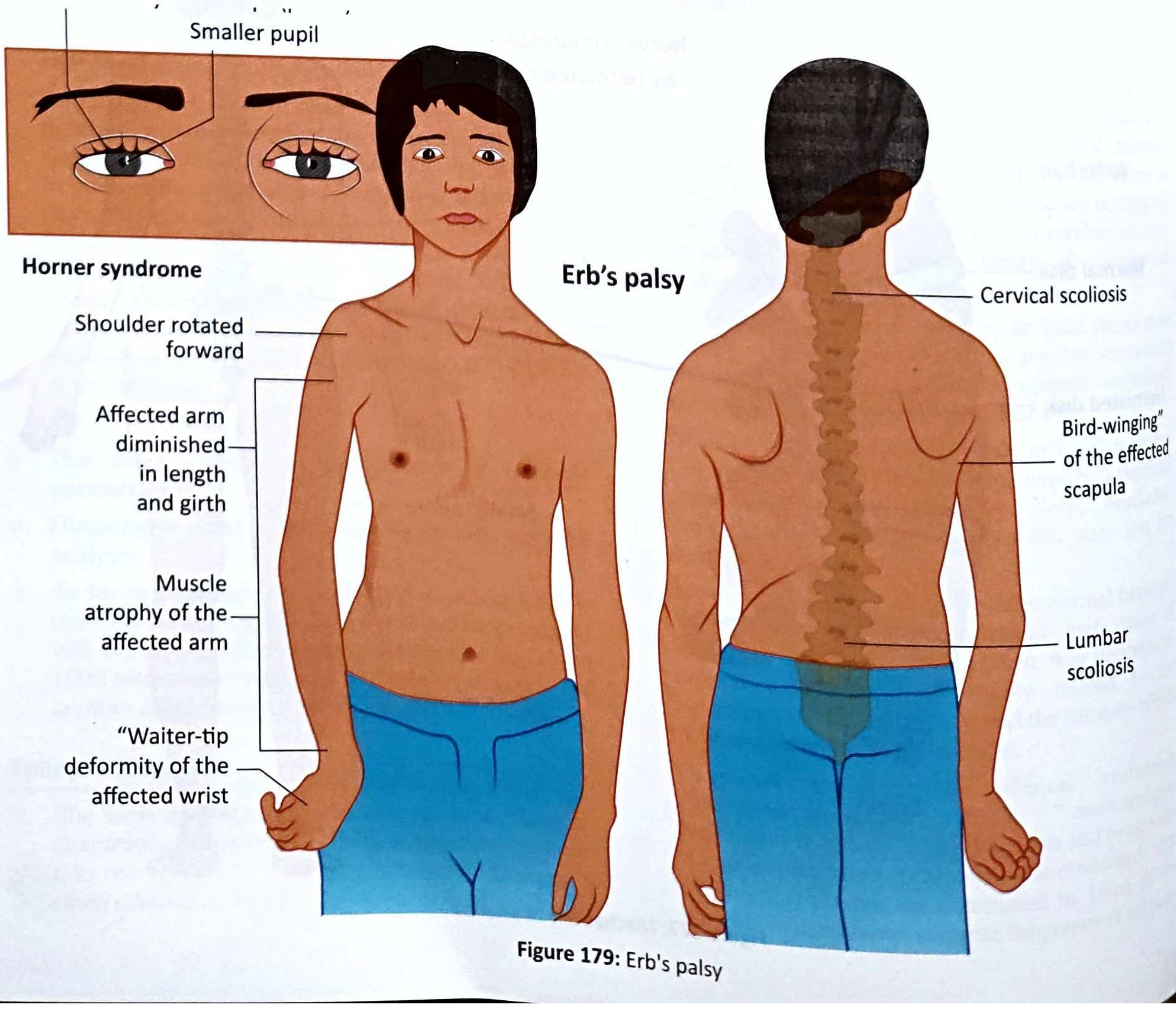

Smaller pupil
Horner syndrome
Erb's palsy
Shoulder rotated forward
Affected arm diminished in length and girth
Muscle atrophy of the affected arm
"Waiter-tip deformity of the affected wrist
Cervical scoliosis
Bird-winging" of the effected scapula
Lumbar scoliosis

**Figure 179:** Erb's palsy

- **Erb's palsy: (see Figure 179)** The position of the limb, under such conditions is characteristic: the arm hangs by the side and is rotated medially; the forearm is extended and pronated. The arm cannot be raised from the side; all power of flexion of the elbow is lost, as is also supination of the forearm.
- **Klumpke's paralysis: (see Figure 180)** A form of paralysis involving the muscles of the forearm and hand, a characteristic sign is the clawed hand, due to loss of function of the ulnar nerve and the intrinsic muscles of the hand it supplies.

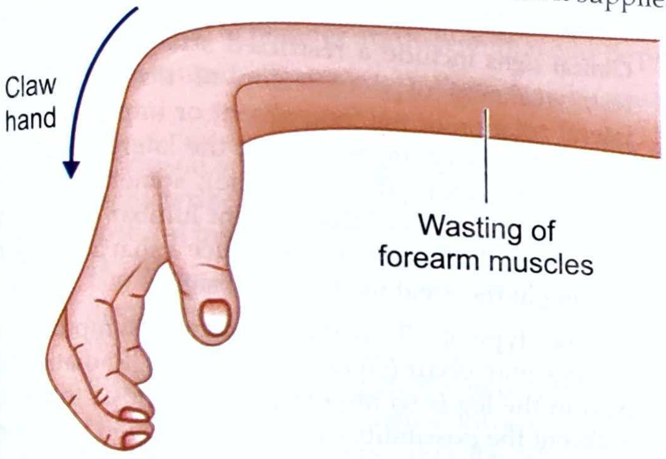


**Figure 180:** Klumpke's palsy

- The most accurate test for diagnosing a brachial plexus injury is operative exploration of the potentially injured segments from the spinal roots to end-organs. Nerves should be evaluated under an operative microscope, with or without intraoperative electrical studies (e.g. bipolar stimulation, SEPs or MEPs) to supplement. The best non-invasive test for BPI is magnetic resonance imaging (MRI). MRI aids in the assessment of the injuries and is used to provide information on the portion of the plexus which cannot be operatively explored (the rootlets and roots).

## Cervical Spondylosis

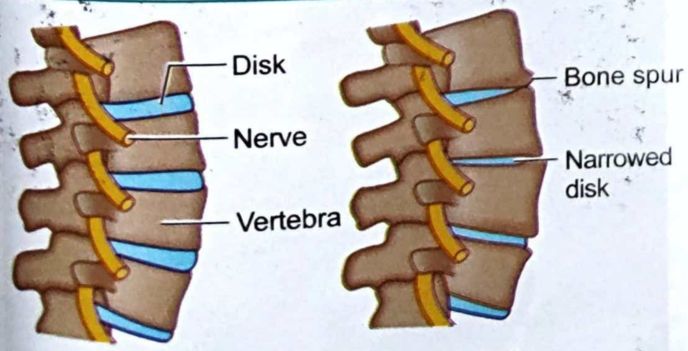


**Figure 181:** Cervical spondylosis

Cervical spondylosis is osteoarthritis of the cervical spine causing stenosis of the canal and sometimes cervical myelopathy due to encroachment of boney osteoarthritic growths (osteophytes) on the lower cervical spinal cord, sometimes with involvement of lower cervical nerve roots (radiculomyelopathy).

- Cervical spinal canal is congenitally narrow in some of the occasions. This may occur as a result of the inflammation of the cervical spine. This may lead to the compression of spinal cord or spinal nerves leading to the symptoms of intervertebral disc prolapse in the cervical region.

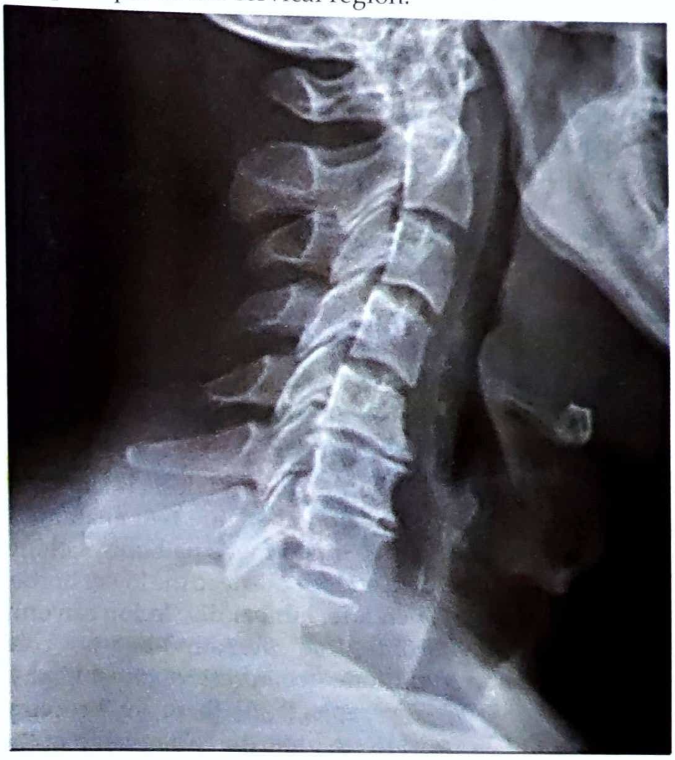


**Figure 182:** X ray of spine showing cervical spondylosis

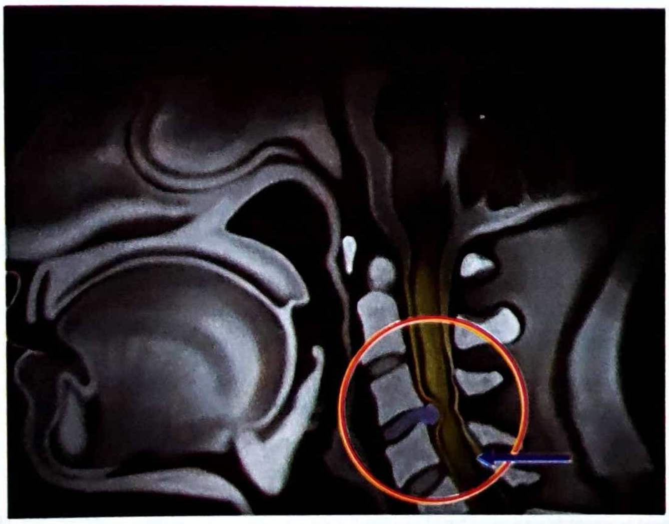


**Figure 183:** MRI scan of cervical spondylosis

- Cord compression commonly causes gradual spastic paresis, parasthesias or both in the hands and feet and may cause hyperreflexia. Neurologic deficits may be asymmetric, nonsegmental, and aggravated by coughing, sneezing and straining for defaecation or any maneuvers which increase the intraspinal pressure. Eventually, the person may develop muscle atrophy and flaccid paresis in the upper limbs at the level of the lesion, with spasticity below the level of the lesion.

- Nerve root compression commonly causes early radicular pain, later may be weakness, hyporeflexia and muscle atrophy.
- Diagnosis **(see Figure 182)** is done by MRI **(see Figure 183)** or CT scan. Cervical spondylosis is suspected when characteristic neurological deficits occur in patients who are elderly, have osteoarthritis or have radicular pain at the level of C5 or C6 vertebra.

## Lumbar Spondylosis

The term lumbar spondylosis **(see Figure 184)** is a degenerative disorder of the lumbo-sacral spine giving rise to disc degeneration and osteophytes formation, leading to spinal deformity, low back pain radiating down one or both lower limbs and features of lumbar radiculopathy.

- The pathogenesis of lumbar spondylosis is similar to that of the cervical region, there are two anatomical differences relevant to the former's pathophysiology. First, the spinal cord ends opposite to the lower border of L1 vertebra. Therefore, lumbar disc lesion can only cause root syndromes (radiculopathy) and not cord compression syndrome (compressive myelopathy) and hence spastic paraplegia. As there are 8 cervical roots and 7 cervical vertebrae, the relationship of the root to the interspace alters only below T1. A disc lesion at L4/L5 damages L5 root and a disc lesion at L5/S1 damages the S1 root (the commonest lesion in lumbar spondylosis.
- The actual cause of back and leg pain is compression of the nerve root, disc diseases leading to herniated disc is the principal factor.
- Lumbar canal stenosis, both congenital and acquired, is another important factor. Other causes of pain such as facet arthropathies and hypertrophy of posterior longitudinal ligaments as occurring in cervical spondylosis.
- The most common presenting feature in the middle aged is the so called sciatica syndrome, due to protrusion of the degenerated L5/S1 disc which produces acute radiculopathy.
- There is a sudden, sharp, low-back pain (LBP) with a feeling of something having snapped at the back. The pain occurs during active movement, stooping or lifting a weight.
- It radiates along either leg down to the great toe; it is worse with coughing and bending and is terrible during an unguarded sneeze.

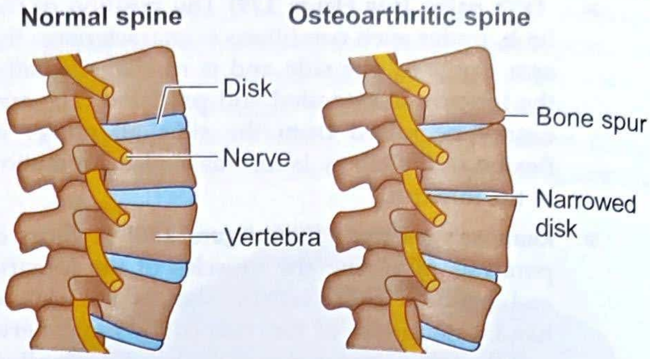


**Figure 184:** Lumbar spondylosis

- **Clinical signs** include a restricted straight-leg-raising test, weakness of dorsiflexion of the hallux and lateral rotation of the foot, absent or impaired ankle jerk and sensory impairment at the lateral aspect of the affected foot (S1 dermatome); sometimes there may be tenderness of the relevant lumbar spine and pressure in that region may produce a sharp pain and tingling at the great toe (doorbell sign).
- Another type of LBP without radicular symptoms in the legs may occur (so-called lumbago). Radiation of pain in the leg is so important in diagnosis that if it is absent the possibility of a disc protrusion is hardly entertained.

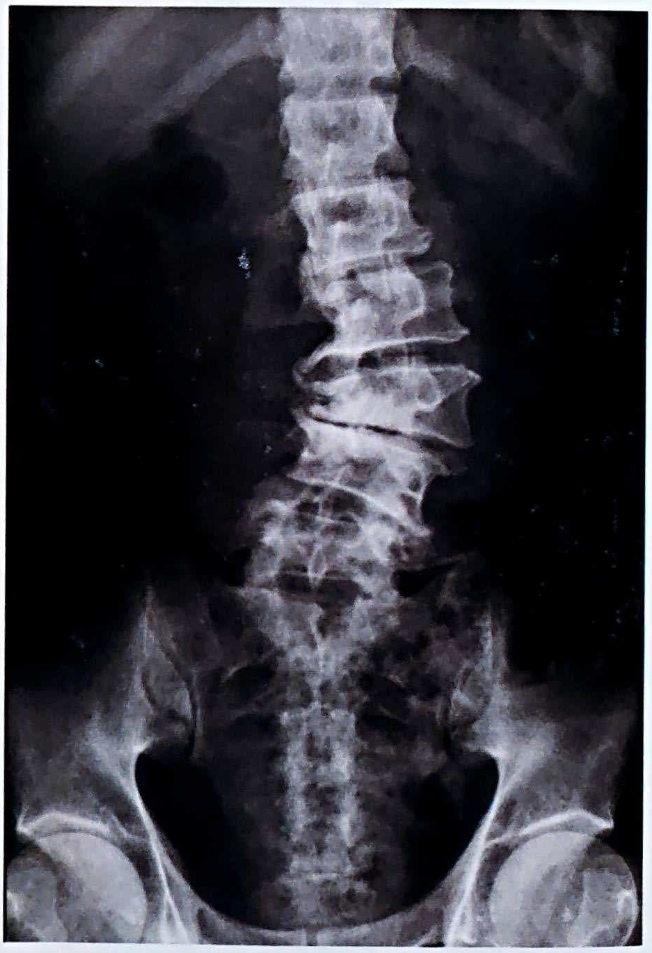


**Figure 185:** X ray spine showing lumbar spondylosis

- Occasionally, a lesion at L3/4 level may produce severe LBP without radicular pain. The most ominous historical feature is rest pain.
- The third type of presentation is the so-called cauda equina syndrome.
- On a chronically spondylotic spine, an acute disc prolapse at L2/3 or L3/4 may lead to bilateral multiple root lesions, with or without unilateral predominance. There is severe bilateral leg pain, flaccid paraplegia and retention of urine.
- On sensory testing there is appropriate sensory impairment and loss/impairment of knee jerk. Distension of bladder due to retention may be present.
- In advanced chronic cases, there may be wasting of muscles supplied by the affected roots, and bladder disturbances.
- Lumbar facet joints are an accepted generator of pain. Characteristically, pain is felt on extension of the spine.
- Diagnosis is done by MRI **(see Figure 185)** or CT scan. The other conditions giving rise to LBP include spinal tumour, primary or secondary, including blood dyscrasias; pelvic causes of compression of lumbar plexus; and various forms of arachnoiditis.
- Functional LBP with radiological changes needs careful consideration, consistent with age, sex, personality traits and other stress factors leading to neurotic behaviour pattern.

## Key summary of the chapter

- Parkinson's disease is a idiopathic, slowly progressive, degenerative disease of central nervous system (CNS) characterized by resting tremor, muscular rigidity, slow and hypokinesia (slow and decreased movement) and postural instability. Diagnosis done by clinical evaluation.
- The term stroke is also known as cerebrovascular accident (CVA). These disorders are heterogenous group of disorders involving sudden, focal interruption of cerebral blood flow that causes neurological deficit. Ischaemia in the cerebral region (ischaemic stroke in 85% of the patients) and intracranial haemorrhage (haemorrhagic stroke in 15% of the patients) are the two mechanisms by which CVA manifests in the individuals. This disease has to be differentiated from seizures, intracranial tumour, migraine and metabolic encephalopathy. Symptoms observed in the patient depends upon the site of the lesion, size of the lesion. Abrupt onset of numbness, weakness or paralysis of the contralateral limbs and face; aphasia; confusion are observed during the progression of the disease. Diagnosis is done by CT scan of the head. CBC, lipid profile, ECG etc will help in predicting the prognosis of the disease.
- Bell's palsy is sudden, idiopathic, unilateral peripheral 7th cranial nerve palsy. Symptoms are hemifacial paralysis of the upper and lower face. There are no specific tests for the diagnosis of the disease.
- Motor neuron disease are characterized by steady, relentless, progressive degeneration of corticospinal tracts, anterior horn cells, bulbar motor nuclei or a combination. Symptoms vary in severity and may include muscle weakness and atrophy, fasciculations, emotional lability and respiratory muscle weakness. Diagnosis involves nerve conduction studies, electromyography and exclusion of other disorders via MRI and laboratory investigations.
- Transverse myelitis is acute inflammation of gray and white matter in one or more adjacent spinal cord segments, usually thoracic. Causes include multiple sclerosis, infections, autoimmune or postinfectious inflammation, vasculitis and certain drugs. Symptoms include bilateral motor, sensory and sphincter deficits below the level of the lesion. Diagnosis is done by MRI, CSF analysis and blood tests.
- The term epilepsy refers to chronic brain disorder characterized by recurrent (≥ 2), unprovoked seizures (i.e. not related to reversible stressors). Epilepsy is often idiopathic, but various disorders of brain such as malformations, cerebrovascular accidents (CVA) or brain tumours can cause symptomatic epilepsy. Seizure is synonymously used for the epilepsy. It is defined as an abnormal, unregulated electrical discharge that occurs within the brain's cortical gray matter and transiently interrupts motor brain function.
- The term lumbago refers to lower back pain. The term sciatica refers to the pain along the sciatic nerve. It usually results from compression of nerve roots in the lower back. Common causes include intervertebral disc herniation, osteophytes and narrowing of spinal canal (spinal stenosis). Symptoms include pain radiating from lower back or buttocks to the lower limb. Diagnosis sometimes, involves MRI or CT scan.
- The term brachial neuralgia refers to a characteristic clinical syndrome of abrupt, severe pain in the shoulder and upper arm, that is followed several weeks later by muscle weakness and profound muscle wasting. It is also known as brachial neuritis, brachial amyotrophy. This is often associated with preceding viral illness, vaccination or other immunological event. Affected muscles are most commonly supplied from C5/C6 segmental level, suggesting the involvement of upper trunk of brachial plexus, such as the long thoracic, axillary, suprascapular and anterior interosseus nerves.
- Cervical spondylosis is osteoarthritis of the cervical spine causing stenosis of the canal and sometimes cervical

myelopathy due to encroachment of boney osteoarthritic growths (osteophytes) on the lower cervical spinal cord, sometimes with involvement of lower cervical nerve roots (radiculomyelopathy).

- The term lumbar spondylosis is a degenerative disorder of the lumbo-sacral spine giving rise to disc degeneration and osteophytes formation, leading to spinal deformity, low back pain radiating down one or both lower limbs and features of lumbar radiculopathy.

## Self-Assessment: Questions for Reviews

### Short essay questions

- Explain Parkinson's disease
- Describe CVA (cerebrovascular accident) or stroke
- Explain Bell's palsy
- Describe MND (motor neuron disease)
- Explain transverse myelitis
- Describe organic epilepsy
- Explain sciatica syndrome
- Describe brachial neuralgia
- Describe cervical spondylosis
- Describe lumbar spondylosis

### MCQs

**1. Which of the following cranial nerve is involved in Bell's palsy?**

a. Occulomotor nerve;
b. Facial nerve;
c. Glossopharyngeal nerve;
d. Vagus nerve

*Answer*: (b)

**2. Which of the following is not the feature of Bell's palsy?**

a. Obliteration of wrinkles of forehead;
b. Inability to close the affected eye;
c. Deviation of the mouth to the affected side of the face;
d. Deviation of the mouth to the sound side of the face

*Answer*: (c)

**3. Which part of the body is afflicted in analysing Bell's phenomenon in Bell's palsy?**

a. Tongue;
b. Nose;
c. Eye;
d. Forehead

*Answer*: (c)

**4. Which of the following is not the feature of Parkinson's disease?**

a. Bradykinesia;
b. Tremors;
c. Rigidity;
d. Hypotonia

*Answer*: (d)

**5. When an individual is having the affliction of L1 and L2 intervertebral disc herniation, the person may have a radiation of pain**

a. Anterior side of the lower limb;
b. Lateral side of the lower limb;
c. Posterior side of the lower limb;
d. Any or all of the above

*Answer*: (a)

**6. Amyotropic lateral sclerosis (ALS) is a variety of**

a. Cerebrovascular accident;
b. Motor neuron disease;
c. Cervical spondylosis;
d. Transverse myelitis

*Answer*: (b)

**7. Straight leg raising (SLR) test is performed to confirm the diagnosis of**

a. Cerebrovascular accident;
b. Parkinson's disease;
c. Transverse myelitis;
d. Sciatica

*Answer*: (d)

**8. Glabellar tap sign is performed to make the diagnosis of**

a. Cerebrovascular accident;
b. Parkinson's disease;
c. Cervical spondylosis;
d. Transverse myelitis

*Answer*: (b)

**9. Clasp knife spasticity is confirmatory which of the following disease?**

a. Lumbar spondylosis;
b. Cerebrovascular accident;
c. Sciatica syndrome;
d. Transverse myelitis

*Answer*: (b)

**10. Cogwheel rigidity is the sign observed in which of the following disease?**

a. Lumbar spondylosis;
b. Cerebrovascular accident;
c. Parkinson's disease;
d. Transverse myelitis

*Answer*: (c)

## Chapter resources

- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Cecil's medicine edited by Lee Goldman and Dennis Ausiello, 23rd edition, Saunders Elsevier publications, Philadelphia, 2007
- https://stanfordmedicine25.stanford.edu/the25/parkinsondisease. html? tab=proxy
- https://www. researchgate. net/figure/Drawing-representing-a-man-with-Bells-palsy-showing-right-facial-hemiparalysis_fig6_259808463/download?_tp=eyJjb250ZXh0Ijp 7ImZpcnN0UGFnZSI6Il9ka XJlY3QiLCJwYWdlIjoiX2RpcmVjdCJ9fQ
- https://drgouthamcugati.com/brain-pathologies/cerebrovascular-pathologies/
- https://www.verywellhealth.com/stroke-symptoms-4014442
- https://radiopaedia.org/articles/stroke
- https://stemcellthailand.org/wp-content/uploads/2019/05/als3.jpg.webp
- https://stemcellthailand.org/therapies/motor-neuron-disease-mnd/
- https://my.clevelandclinic.org/health/diseases/8980-transverse-myelitis
- https://radiopaedia.org/cases/19648/studies/19687?lang=us&source_of=https%3A%2F%2Fradiopaedia.org%2Farticles%2Ftransverse-myelitis
- https://www.epilepsy.com/stories/understanding-brain-tumor-related-epilepsy
- https://www.revivesportspine.com/blog/sciatica-pain-relief-series-part-1-utah-sports-chiropractor
- https://en.wikipedia.org/wiki/Brachial_plexus_injury
- https://emedicine.medscape.com/article/315811-overview?form=fpf
- https://boneandspine.com/erbs-palsy/
- https://mobilephysiotherapyclinic.in/klumpkes-palsy-treatment-exercise/
- https://www.metrophysio.co.uk/conditions/neck-pain-physiotherapy/cervical-spondylosis/
- https://www.spine-health.com/conditions/neck-pain/diagnosis-spondylosis-cervical-myelopathy
- https://www.spineclinicpune.com/spinecare/terms/what-is-lumbar-spondylosis/5862
- https://simplyalignrehab.com/physiotherapy-for-lumbar-spondylosis-scarborough-woodbridge/

***

CHAPTER

43

# Sandhigata Vata and Asthimajjagata Vata

## Learning Objectives

- ➪ To have the understanding of Sandhigata Vata and Asthimajjagata Vata
- ➪ To frame the probable Samprapti Ghataka of the diseases based on the progression of the symptoms
- ➪ To frame the Sadhyasadhata of the disease based on the available descriptions

## Sandhigata Vata

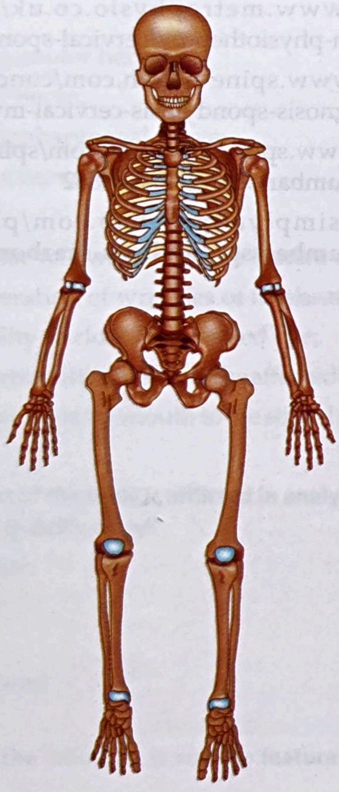


**Figure 186:** Depiction of Asthivaha Srotas

**Introduction:** *Sandhigata Vata* is a spectrum of the diseases where we can observe the vitiation of *Vata* and affliction of *Sandhi* (various joints produced by bones). The name indicates the pathological diagnosis where in vitiated *Vata Dosha* afflicts the *Sandhi* region.

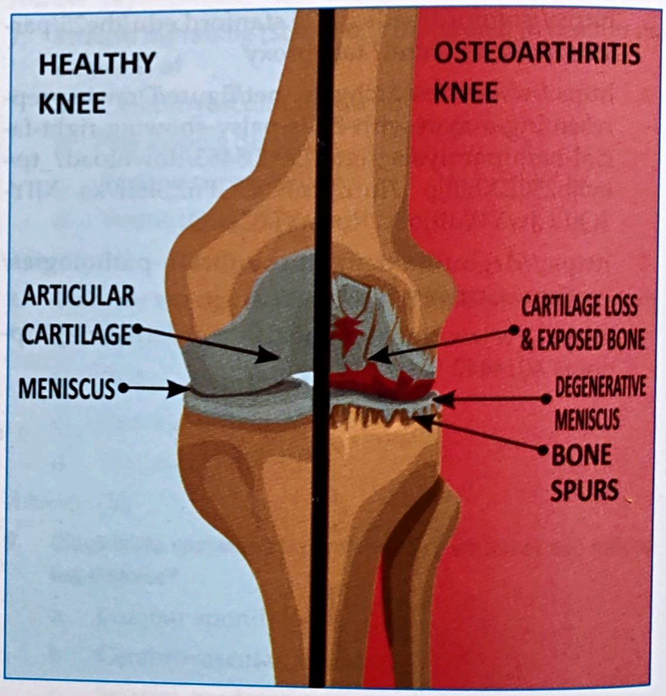


**Figure 187:** Normal and abnormal states of Sandhi or joint

The type of the *Sandhi* afflicted will be depending upon the nature of exposure of the aetiological factor, duration of the exposure to *Nidana* and physical strength of the patient.

For example, if an individual is having the habit of walking for more than 10 kms every day, this may lead to the initiation of wear and tear of the knee joint leading to the inflammatory changes in the knee joint which further leads to the effusion of the knee joint which appears as a swelling of the knee joint.

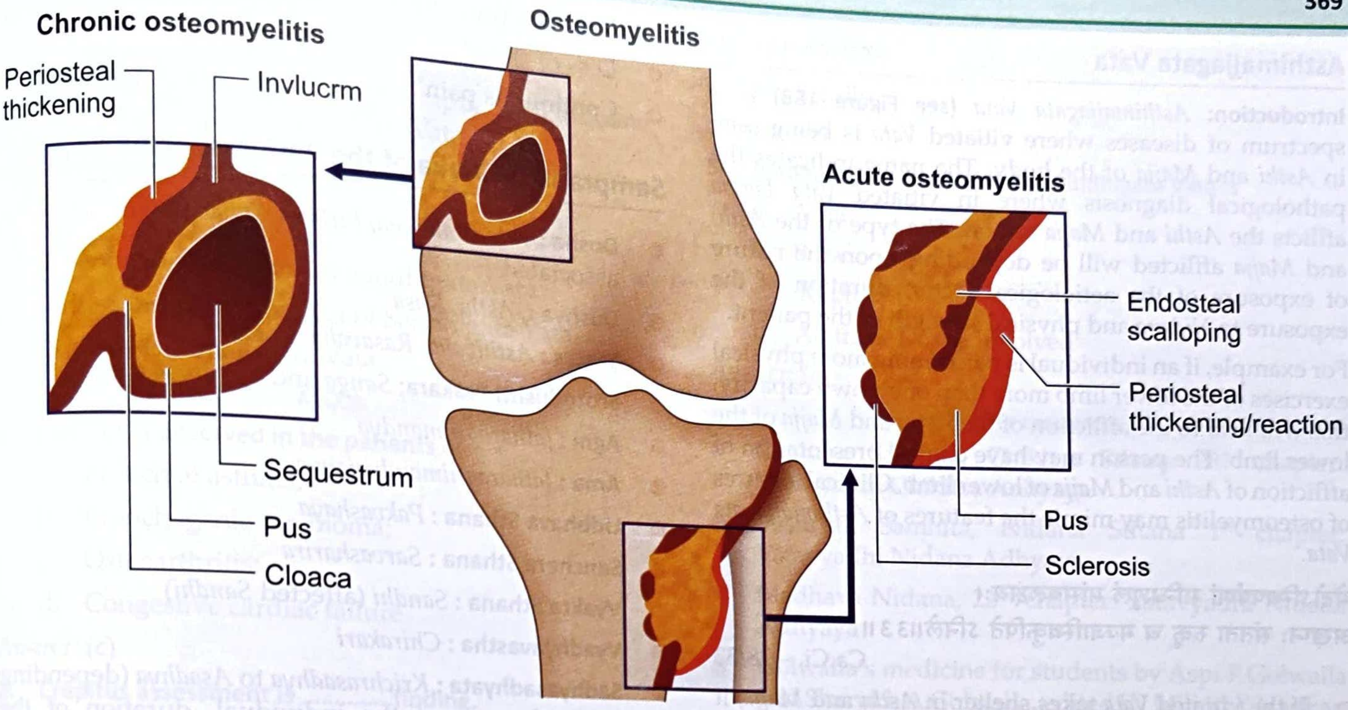


Figure 188: Osteomyelitis

वातपूर्ण हतिस्पर्शः शोथः सन्धिगतेऽनिले।
प्रसारणाकुञ्चनयोः प्रवृत्तिश्च सवेदना॥3 7 ॥

Ca.Ci. – 28/37

- There will be vitiation of *Vata Dosha* and it takes shelter in the *Sandhi*[1] **(see Figure 186)** region.
- Swelling of the joint can be observed.
- Restricted movement of the joint can be seen
- Association of severe pain during movement can be observed.

हन्ति सन्धिगतः सन्धीन् शूलाटोपौ करोति च॥ Ma.Ni. – 22/21

हन्ति सन्धिगतः सन्धीन् शूलशोफ करोति च॥ Su.Ni. – 1/28

*Sandhigata Vata*[2] **(see Figure 187)** as per *Madhava Nidana* and *Sushruta Samhita*, the following features are observed.

- *Shula* in *Sandhi* region (pricking type of pain in the joints)
- *Atopa* (distension of the joint or joint effusion), though the literal meaning is distension of the abdomen, in this context, joint effusion should be considered.
- *Shopha* (swelling of the joint afflicted)

## Samprapti Ghataka of Sandhigata Vata

- **Dosha** : *Vata Pradhana; Kapha Anubandha* may be seen
- **Dushya :** *Asthi, Rasa*
- **Srotas :** *Asthivaha, Rasavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana :** *Sarvasharira*
- **Vyakta Sthana :** *Sandhi* (affected *Sandhi*)
- **Vyadhyavastha :** *Chirakari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya* (depending upon the age of the individual, duration of the illness, number of joints afflicted, nature of exposure of aetiological factor, number of *Srotas* involved in the disease process, presence of other comorbid conditions, physical strength of the individual)
- **Rogamarga** : *Madhyama, Bahya, Abhyantara* (order of the involvement of *Rogamarga* in the individual)

---

G K

[1] When an individual is doing exercise related to hand such as having the profession of cooking and he is doing more work than normal, then there will be increased blood circulation occurs to the upper limb. If the person is having more activities related to the lower limb, he will have more blood circulation to the lower limb.

[2] If the person is having the habit of excess movement of the knee joint, or having the habit of continuous squatting position, then more blood circulation to the knee joint occurs. The affliction of the joint happens because of the impact of the aetiological factor, duration of the exposure of the trauma to the joint etc. This may occur because of

- Excess movement of the joint leads to increased blood circulation
  - Due to the increased friction between the joint surfaces and wear and tear of the joint surface and menisci happens
  - Because of the wear and tear, inflammation of the joint surfaces resulting in oozing of the fluid in the joint cavity occurs leading to the effusion of the joint.

## Asthimajjagata Vata

**Introduction:** *Asthimajjagata Vata* **(see Figure 188)** is a spectrum of diseases where vitiated *Vata* is being seen in *Asthi* and *Majja* of the body. The name indicates the pathological diagnosis where in vitiated *Vata Dosha* afflicts the *Asthi* and *Majja* region. The type of the *Asthi* and *Majja* afflicted will be depending upon the nature of exposure of the aetiological factor, duration of the exposure to *Nidana* and physical strength of the patient.

For example, if an individual is performing more physical exercises of the lower limb more than one's own capacity, this will lead to the affliction of the *Asthi* and *Majja* of the lower limb. The person may have clinical presentation of affliction of *Asthi* and *Majja* of lower limb. Clinical features of osteomyelitis may mimic the features of *Asthimajjagata Vata*.

**भेदोऽस्थिपर्वणां सन्धिशूलं मांसबलक्षयः।**
**अखप्नः संतता रुकू च मज्जास्थिकुपिते ऽनिले॥33॥**

Ca.Ci. – 28/33

- If the vitiated *Vata* takes shelter in *Asthi* and *Majja*, it is being called as *Asthimajjagata Vata*.
- Tearing type of pain in the bones
- Tearing type of pain in the joints[3]
- Pricking type of pain in the joints[4]
- Depletion of muscle tissue from the body i.e. atrophy of the muscles is seen[5]
- Person is presented with reduced strength[6]
- Loss of sleep[7]
- Continuous pain[8]

## Samprapti Ghataka of the Asthimajjagata Vata

- **Dosha :** *Vata Pradhana, Pitta* or *Kapha* may/ may not be associated
- **Dushya :** *Asthi, Rasa*
- **Srotas :** *Asthivaha, Rasavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya*
- **Ama :** *Jatharagnimandyajanya*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana :** *Sarvasharira*
- **Vyakta Sthana :** *Sandhi* (affected *Sandhi*)
- **Vyadhyavastha :** *Chirakari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya* (depending upon the age of the individual, duration of the illness, number of joints afflicted, nature of exposure of aetiological factor, number of *Srotas* involved in the disease process, presence of other comorbid conditions, physical strength of the individual)
- **Rogamarga :** *Madhyama, Bahya, Abhyantara* (order of the involvement of *Rogamarga* in the individual)

### Key summary of the chapter

- **Sandhigata Vata** is a spectrum of the diseases where we can observe the vitiation of Vata and affliction of Sandhi (various joints produced by bones). The name indicates the pathological diagnosis where in vitiated Vata Dosha afflicts the Sandhi region.
- **वातपूर्ण हतिस्पर्शः शोथः सन्धिगतेऽनिले। प्रसारणाकुञ्चनयोः प्रवृत्तिश्च सवेदना॥37॥** Ca.Ci. – 28/37 This is a abnormal Vata dominant disease where affliction of Sandhi is seen, characterised by swelling of the joint, severe pain in the joints associated with severe pain in the joint during the movement.
- **Asthimajjagata Vata** is a spectrum of diseases where vitiated Vata is being seen in Asthi and Majja of the body. The name indicates the pathological diagnosis where in vitiated Vata Dosha afflicts the Asthi and Majja region. The type of the Asthi and Majja afflicted will be depending upon the nature of exposure of the aetiological factor, duration of the exposure to Nidana and physical strength of the patient.
- **भेदोऽस्थिपर्वणां सन्धिशूलं मांसबलक्षयः। अखप्नः संतता रुकू च मज्जास्थिकुपिते ऽनिले॥33॥** Ca.Ci. – 28/33; in this spectrum of diseases, the person will have abnormal vitiation of Vata Dosha observed in the Asthi and Majja Dhatu. This is associated with tearing type of pain in bones or/and joints, pricking type of pain bones or/and joints, depletion of muscle tissue (atrophy of muscles), reduced strength, loss of sleep and continuous dull aching type of pain.

---

[3] The term Bhedana type of discomfort implies tearing type of pain is present in the bones and joints. When the site of discomfort is presented with accumulation of pus in the sit of the lesion.

[4] The term Shula (pricking type of pain) indicates the dominance of Vata Dosha in the body. This indicates the inflammatory response in the affected part of the body.

[5] When an individual is having degenerative disease of the bone and bone marrow, this will lead to limitation of movement of the affected bones. As the condition progresses, the person will have limited muscular activity, which leads to disuse atrophy of the affected part of the body. Thus, the person will have muscle atrophy.

[6] When the bone, bone marrow is afflicted, there is a possibility of reduced formation of formed elements of blood – RBCs, WBCs and platelets. This will lead to poor nutrition to the interstitial and intracellular compartments, thus the person may have poor physical strength.

[7] As the person is suffering from inflammation and infection of bone, and the person may develop continuous aching type of pain in case of affliction of bone, the person may develop of sleeplessness.

[8] One of the cardinal feature of affliction of bone is continuous aching type of pain which worsens on movement of bone.

## Self-Assessment: Questions for Reviews

### Long essay questions

- Explain Nidana, Samprapti, Lakshana, Sadhyasadhyata of Sandhigata Vata
- Describe Sandhigata Vata in detail

### Short essay questions

- Describe the Lakshana of Sandhigata Vata
- Write Samprapti Ghataka of Sandhigata Vata
- Explain Asthimajjagata Vata

### MCQs

1. **Crepitus is observed in the patients of**
   - a. Bronchial asthma;
   - b. Bronchogenic carcinoma;
   - c. Osteoarthritis;
   - d. Congestive cardiac failure

*Answer*: (c)

2. **Crepitus assessment is .............finding.**
   - a. Inspection;
   - b. Palpation;
   - c. Percussion;
   - d. Auscultation

*Answer*: (b)

3. **In case of Sandhigata Vata, the fullness of the joint is like fullness with ........**
   - a. Rakta;
   - b. Vata;
   - c. Medas;
   - d. Majja

*Answer*: (b)

4. **Udbhava Sthana of Sandhigata Vata is**
   - a. Amashaya;
   - b. Pakvashaya;
   - c. Both Amashaya and Pakvashaya;
   - d. Sandhi

*Answer*: (b)

5. **Pradhana Dosha involved in Sandhigata Vata is**
   - a. Vata;
   - b. Pitta;
   - c. Kapha;
   - d. All three Dosha involved

*Answer*: (a)

### Chapter resources

- Charaka Samhita, Chikitsa Sthana 28th chapter: Vatavyadhi Chikitsa Adhyaya
- Sushruta Samhita, Nidana Sthana 1st chapter: Vatavyadhi Nidana Adhyaya
- Madhava Nidana, 22nd chapter: Vatavyadhi Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006www.visiblebody.com
- www. api. parashospitals. com
- Case courtesy of David Gendy, Radiopaedia.org, rID: 93905 for image of osteomyelitis

***

CHAPTER

44

# Diseases of Bones, Joints and Muscles

## Learning Objectives

- ⇨ To know about brief introduction about Musculo skeletal diseases
- ⇨ To know about the clinical features of osteoarthritis, osteoporosis, frozen shoulder syndrome, calcaneal spur, plantar fasciitis, tennis elbow, carpal tunnel syndrome, muscular diseases, muscular dystrophy
- ⇨ To know about necessary physical examinations to be performed in above mentioned diseases
- ⇨ To know about the laboratory investigations preferred in above mentioned diseases and interpretations of these investigations

## Osteoarthritis

Osteoarthritis **(see Figure 189)** (OA) is a chronic degenerative inflammation of joints characterized by disruption and partial loss of join cartilage along with other joint changes, including bone hypertrophy (osteophyte formation). Symptoms include gradually developing pain aggravated or triggered by activity, stiffness lasting < 30 minutes on awakening and after inactivity and occasional joint swelling. Diagnosis is confirmed by x rays of the affected joint.

- This is the most common joint disorder, often becomes symptomatic in the 40s and 50s of the age group and after the age of 80, this is universal in presentation. Only ½ of the patients with pathological changes of OA have symptoms. Below 40 years, most OA is seen in males and results from trauma. Women predominate from age between 40 and 70.
- OA is classified as primary (idiopathic) and secondary (due to other clinical conditions such as trauma or congenital joint diseases or infection of the joints or endocrine or neurological diseases)
- Onset is gradual, usually beginning with one or few joints. Pain is the earliest symptom, sometimes worsened by weight bearing and relieved by rest, but can eventually become constant. Stiffness follows awakening or inactivity and pain may persist for < 30 minutes and lessens with movement. As OA progresses, the degree of movement of afflicted joint will be reduced and tenderness and crepitus or grating sensations develop.

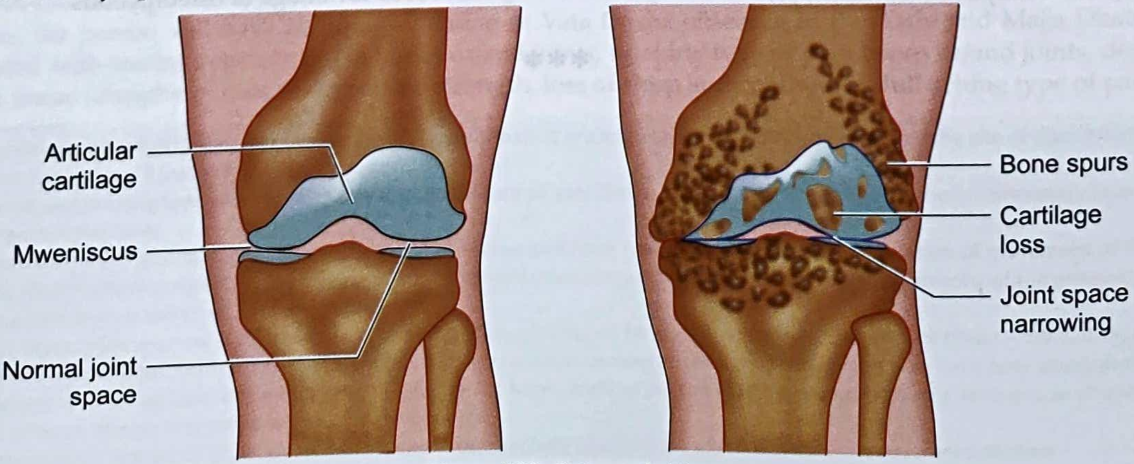


**Figure 189:** Osteoarthritis

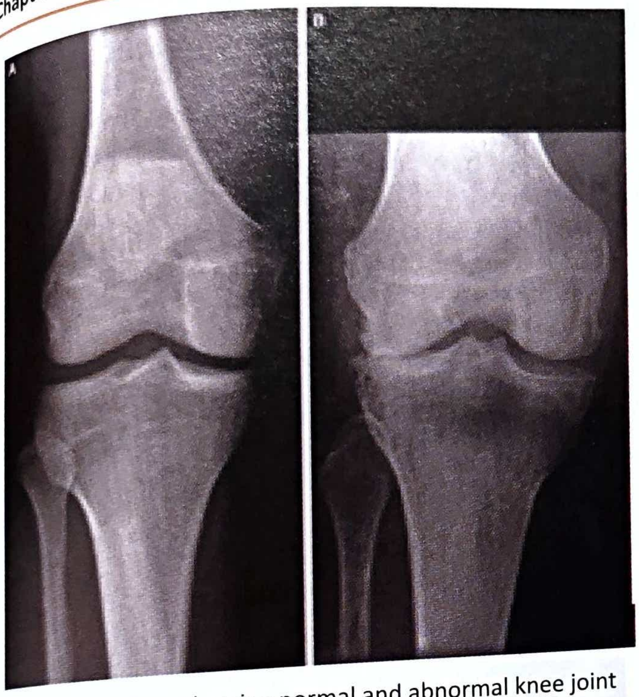


**Figure 190:** X ray showing normal and abnormal knee joint

- Proliferation of the cartilage, bone, ligament, tendon, capsule and synovium along with varying amount of joint effusion, ultimately causing joint enlargement. Flexion contractures may eventually develop.
- Tenderness on palpation and pain on passive motion are relatively late signs of OA. Deformities and subluxations may develop during the progression of the disease.
- Diagnosis is made by performing X-ray **(see Figure 190)** of the affected joint.

## Osteoporosis

Osteoporosis **(see Figure 191)** is a progressive, metabolic bone disease that decreases bone density (bone mass per unit volume), with deterioration of bone structure.

Skeletal weakness leads to fractures with minor or inapparent trauma, particularly in the thoracic and lumbar spine, wrist and hip.

Acute or chronic back pain is common. Diagnosis is by dual energy x ray absorptiometry.

- Normally bone formation and resorption are closely coupled. Osteoblasts (cells that make the organic matrix of the bone and then mineralize bone) and osteoclasts (cells that resorb bon) are regulated by parathyroid hormone, calcitonin, oestrogen, vitamin D and other local factors such as prostaglandins.
- Osteoporotic bone loss affects cortical and trabecular (cancellous) bone. Cortical thickness and the number and size of trabeculae decrease, resulting in increasing porosity. Trabeculae may be disrupted or entirely absent.

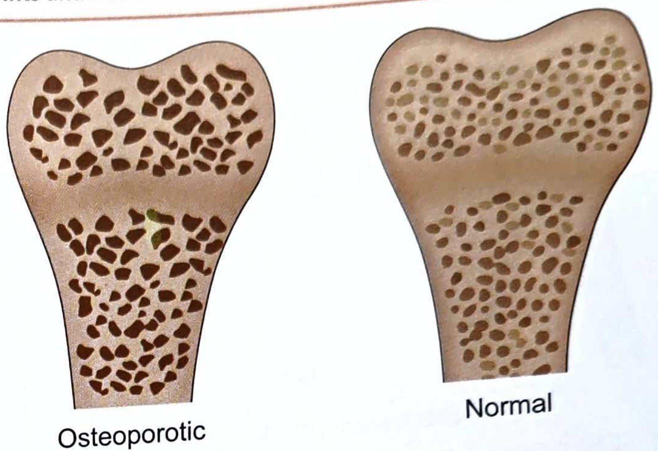


**Figure 191:** Osteoporosis

- Osteoporosis can develop as primary (idiopathic) or secondary (due to some other factors) based on the nature of exposure to the aetiological factor.
- In primary type, cause is unidentifiable, and in secondary type, the disease may develop due to cancer or COPD or chronic renal failure or endocrine disease such as Cushing's syndrome/ hyperparathyroidism/ diabetes mellitus/ hyperthyroidism or hypervitaminosis A or liver disease or rheumatoid arthritis (RA) or sarcoidosis.
- Most of the chronic pain typical of osteoporosis results from fractures, which may develop after minimal, inapparent or no trauma.
- Patient may be asymptomatic for years until fractures begin to occur.
- Eventually often patients develop pain in the bones or muscles, particularly of the back. Vertebral compression fractures are common, usually in weight bearing vertebrae (T6 and below).
- Onset of the pain is sudden, usually does not radiate, aggravated by weight bearing, may cause local tenderness, and generally begin to subside in 1 week. However, residual pain may last for months or be constant.
- The person may have dorsal kyphosis due to multiple thoracic compression fractures, with exaggerated cervical lordosis (dowager's lump). Abnormal stress on spinal muscles and ligaments may cause chronic, dull, aching pain, particularly in the lower back. Fractures can develop at other sites, commonly the hip or wrist, usually from falls.
- Diagnosis is done by Dual Energy X-Ray Absorptiometry (DEXA).

## Frozen Shoulder Syndrome

Frozen shoulder **(see Figure 192)** is a clinical condition where in the movements of the affected shoulder (glenohumoral joint) become limited associated with severe pain and increased stiffness.

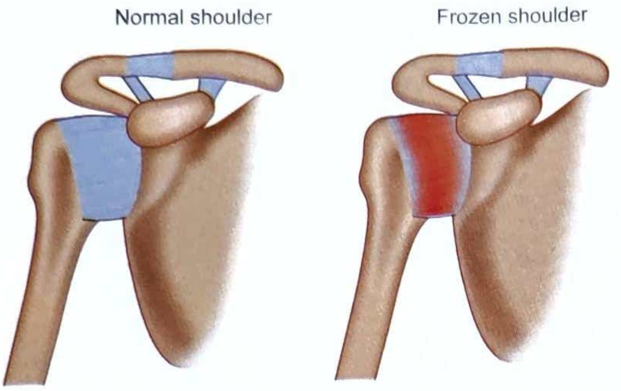


**Figure 192:** Frozen shoulder syndrome

- The patient most often gives the history of trauma.
- The underlying pathology is that an exudate causes the layers of the infra-articular synovial membrane (inferior aspect of the synovial membrane) and the capsule to adhere to one another. Patients between 45 – 60 years are commonly affected. This is more commonly seen in females.
- The patient experiences pain which becomes worse at night and prevents the patient from sleeping on the affected side. Gradual stiffness of the shoulder follows. In a matter of months, all movements especially abduction and external rotation are restricted. As the process continues, the pain abates. By this time, the muscles around the shoulder show signs of disuse atrophy. Months later, stiffeness gradually lessens and the disease recovers spontaneously.
- 3 phases of the disease can be observed: Each phase lasts 4 to 8 months and the whole process takes about 2 years.
    - Increasing pain and increasing stiffness
    - Decreased pain with persistent stiffness
    - Disappearance of stiffness with return of all the movements
- Diagnosis is done by physical examination and X- ray

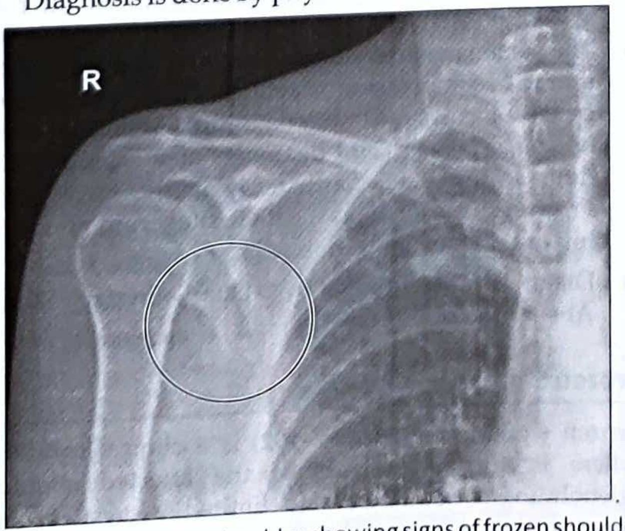


**Figure 193:** X ray right shoulder showing signs of frozen shoulder

## Calcaneal Spur

Calcaneal spur is a bony projection forwards from the undersurface of the calcaneal tuberosity. It is nothing but ossification of the plantar fascia at its calcaneal end. This has very little significance so far as the pain in the heel is concerned. This means if a patient complains of pain in the heel and on x ray, one can find the presence of calcaneal spur, the clinician cannot infer that the calcaneal spur is the cause of pain. Very often, inflammation of the soft tissue or bursa beneath the spur gives rise to pain.

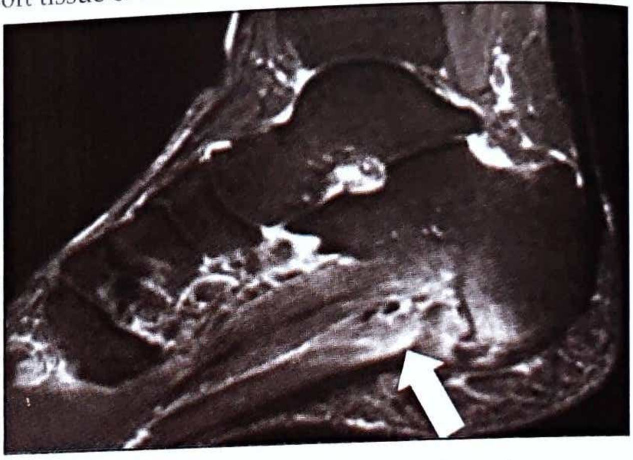


**Figure 194:** X ray foot showing calcaneal spur

- Calcaneal spur is often associated with plantar fasciitis (painful inflammation of the fibrous band of connective tissue, i.e. plantar fascia. These may develop on the inferior surface of the heel, that occurs over a period of many months. These are caused by strains on the foot muscles and ligaments, stretching of the plantar fascia, and repeated tearing of the membrane that covers the calcaneus. These are common among athletes whose activities include large amounts of running and jumping.
- This disease will not cause any major symptoms. This may be associated with intermittent or chronic pain, especially while walking, jogging or running. The character of pain will be like knife or pin sticking into the bottom of the feet, if the inflammation develops at the point of spur formation.
- Diagnosis is done by x ray. As far as prognosis is concerned, 20 to 75% of the patients no longer have any symptoms within a maximum of one year after the onset of the symptoms.

## Plantar Fasciitis

Plantar fasciitis, a painful inflammation of the fibrous band of connective tissue (plantar fascia) that runs along the bottom of the foot and connects the heel bone to the ball of the foot. In this condition, the person will have unbearable pain under heel particularly during walking when the weight of the body is carried by the heel. The cause seems to be a small tear in the attachment of plantar fascia to the os calcis. Non specific infection from non specific urethritis or from specific gonococcal infection may develop this condition. Sometimes, a bony spur may be seen at the attachment of the plantar fascia, i.e. calcaneal spur. This may or may not be the cause of pain.

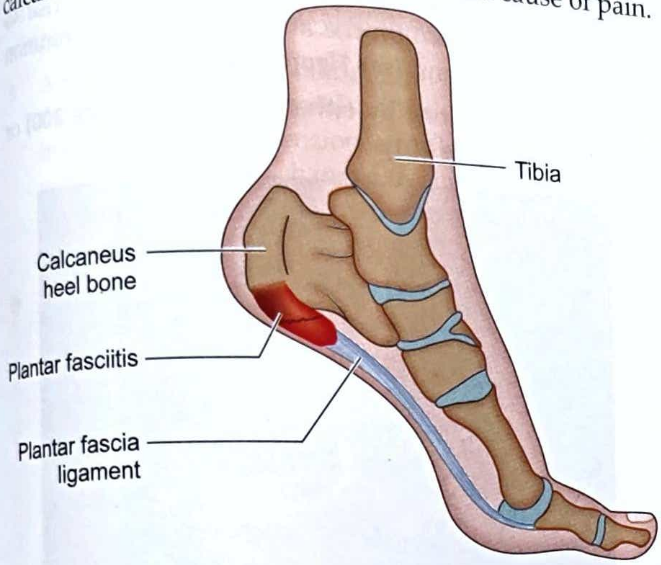


**Figure 195:** Plantar fascitis

- Plantar fasciitis is an inflammation of the fibrous tissue (plantar fascia) along the bottom of foot that connects heel to the toes.
- The cause of plantar fasciitis is unknown. This is more commonly seen in runners or the people having overweight or obesity.
- **Symptoms:** This is associated with intense throbbing type of pain often occurs with first steps in the morning which gets relieved after waking up and walking for few steps. This may recur standing for a long period of time. Most of the occasions, this is unilateral, but bilateral presentation may also be seen.
- On examination, tenderness of the foot at the heel on palpation is observed which may worsen on dorsiflexion of the foot.
- Diagnosis is done by either X-ray **(see Figure 194)** or MRI **(see Figure 196)**.

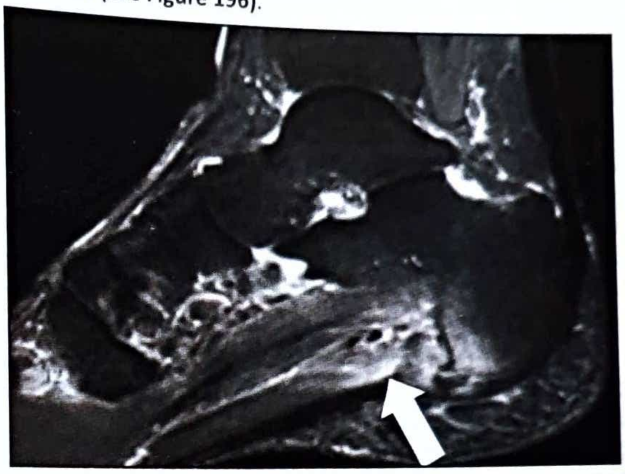


**Figure 196:** MRI showing plantar fascitis

## Tennis Elbow

Tennis elbow is a clinical condition where the patient complains of pain in the lateral epicondyle of the humerus where the extensor group of muscles of forearm is attached. This is also called as lateral epicondylitis. This is more often seen among the tennis players and hence the name, but quite a number of sufferers of this condition have never played tennis. The pain is aggravated when the patient tends to extend the wrist and the fingers, more so against resistance. Diagnosis is done by x ray or MRI.

- The major cause of the disease is repetitive, excess, strained use of the extensor group of the muscles of the forearm which is attached to the lateral epicondyle of the forearm.

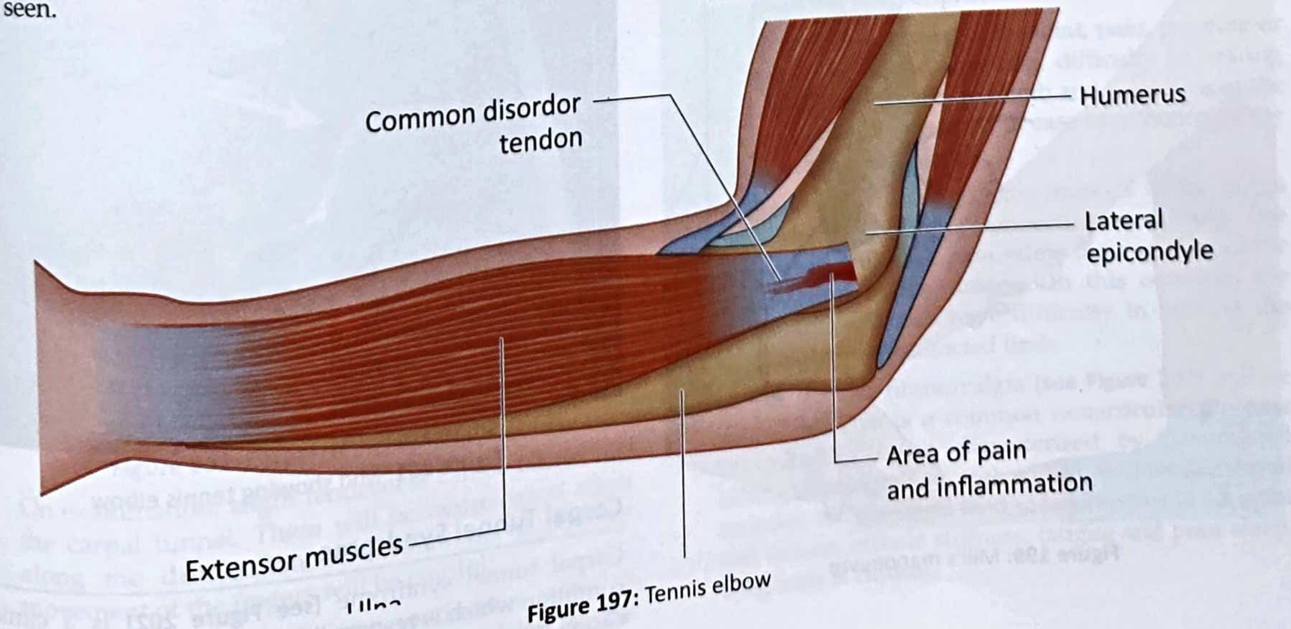


**Figure 197:** Tennis elbow

- Symptoms include pain, burning or ache along the lateral side of the forearm and elbow. It is worsened by continuous extension activity of the forearm and which spread even to the wrist. The grip may become weak.
- On examination, localized tenderness is felt on the lateral epicondyle where the extensor group of muscles of the forearm is attached. Cozen's test is performed and Mill's manoeuvre is done to confirm the diagnosis of the disease.

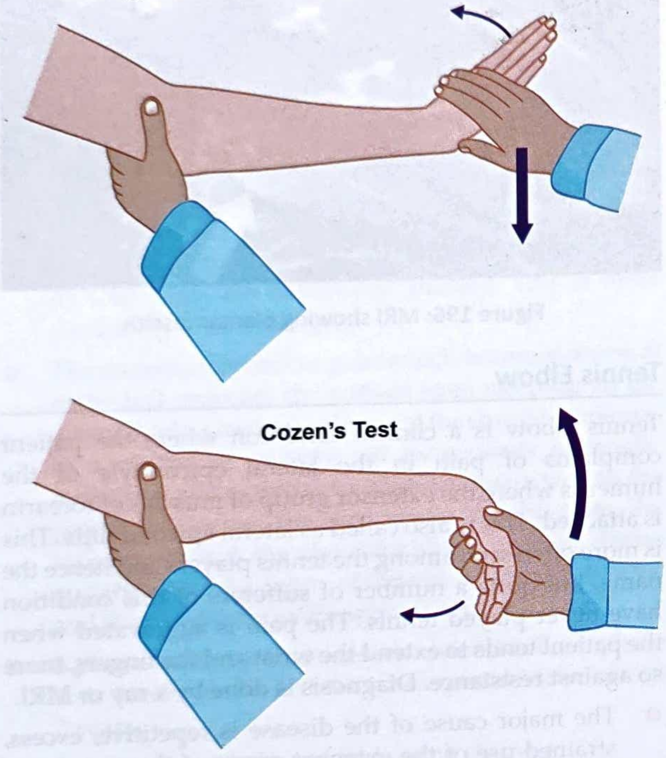


**Figure 198:** Cozen's test

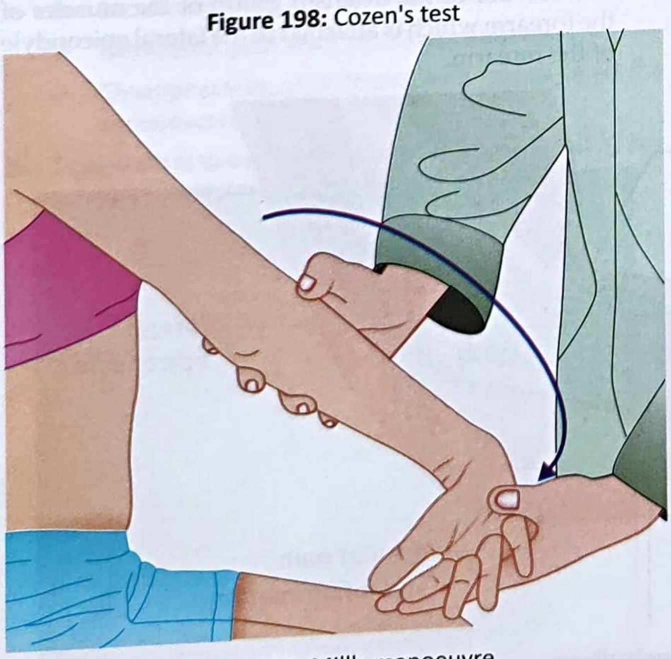


**Figure 199:** Mill's manoeuvre

- **Cozen's test:** The patient is asked to extend his clenched fist against resistance, considerable pain is experienced at the lateral epicondyle. **(see Figure 198)**
- **Mill's manoeuvre:** Patient's wrist is passively flexed when his forearm is pronated. This gives rise to tremendous pain on the attachment of the common extensor tendons. **(see Figure 199)**

- Diagnosis is done by either X ray **(see Figure 200)** or MRI **(see Figure 201)**.

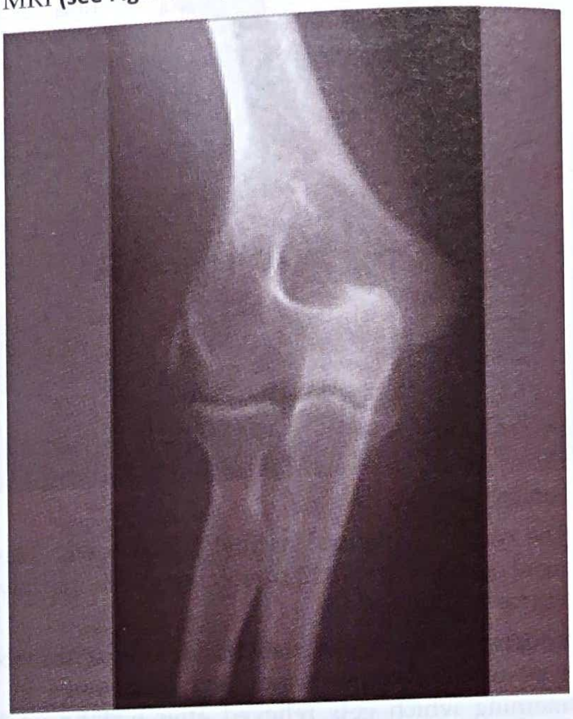


**Figure 200:** X ray showing tennis elbow

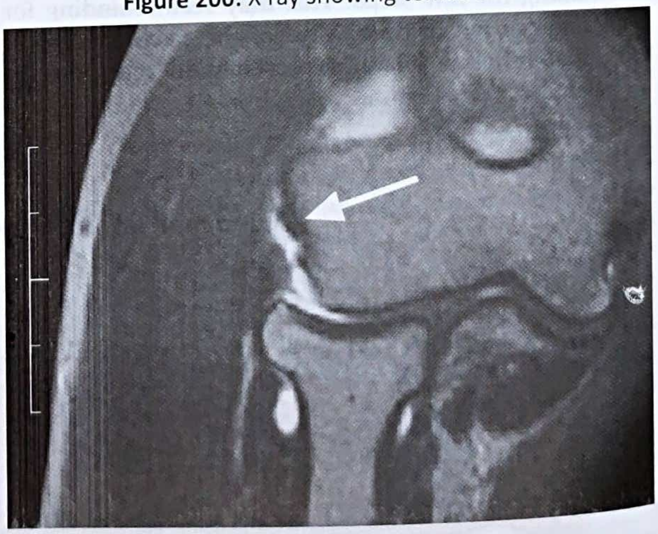


**Figure 201:** MRI showing tennis elbow

## Carpal Tunnel Syndrome

Carpal tunnel syndrome **(see Figure 202)** is a clinical condition which is responsible for the compression of the carpel tunnel. This condition is an example of stenosing tenovaginitis. Here, the cause is not only thickening of the flexor retinaculum, but involvement of the synovial sheaths of the flexor tendons or dislocation of lunate bone which compresses on the contents of this osseo-fibrous canal, median nerve in particular. The main presenting complaint is difficulty in flexing the fingers.

- A wrist fracture or inflammation of the wrist joint in the patients of rheumatoid arthritis or activities that involve extreme extension and flexion of hand and wrist or hormonal changes during pregnancy may cause the compression of the carpal tunnel, which compresses median nerve.
- The main complaint is some sort of difficulty in flexing the fingers with pain and neurological deficits of the median nerve, e.g. paraesthesia or numbness or incoordination or weakness of the muscles innervated by median nerve. The pain disturbs the sleep of the patient. Occasionally shock like sensations that radiate to the thumb and index, middle and ring fingers, pain may radiate upto forearm towards the shoulder. Weakness and clumsiness of the hand which makes the person to perform finer activities with difficulty such as buttoning the clothes.

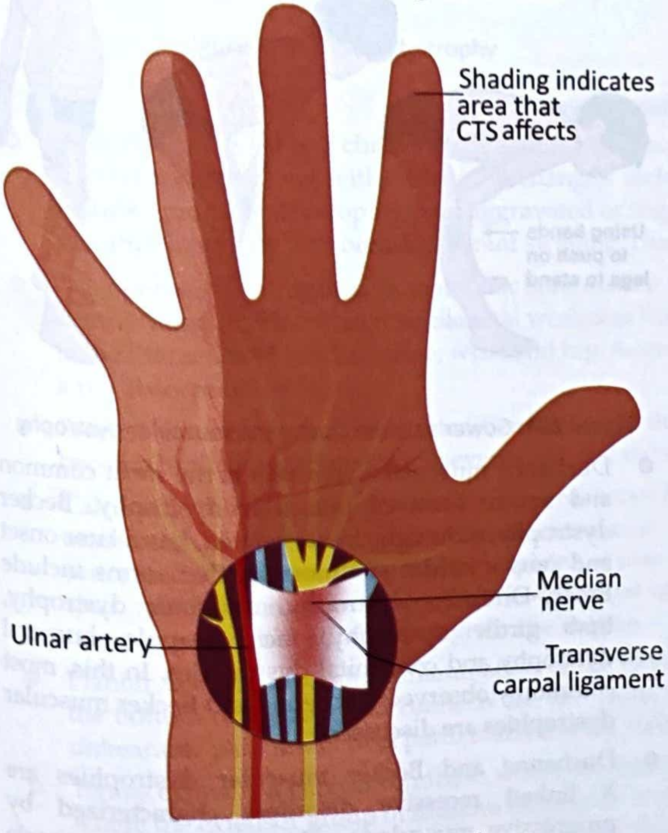

Shading indicates area that CTS affects
Median nerve
Ulnar artery
Transverse carpal ligament

**Figure 202:** Carpal tunnel syndrome

- On examination, slight tenderness can be elicited on the carpal tunnel. There will be neurological signs along the distribution of median nerve. Flexion movement of the fingers will be painful.
- Diagnosis is done by nerve conduction study of median nerve which demonstrate a delay in the carpal tunnel.

## Muscular Diseases

This group of diseases must be considered while making the differential diagnosis related to bones and joints. Trauma, fracture and fibromyalgia are most common clinical presentation of the musculoskeletal disorders. The patient may have presentation of severe pain which results in the restriction of movement of the affected part of the body.

- The role of physical examination include to ascertain the structures involved, the nature of underlying pathology, functional consequences of the process and the presence of systemic and extraarticular manifestations. Whenever, analysing muscular pain, one should rule out the affliction of bone, joint, muscle, bursa, ligament and tendon.
  - Bony pain is often described as penetrating, boring or deep pain, characteristically worse at night. Localized bony pain may occur in tumour, chronic infection (osteomyelitis), avascular necrosis or osteoid osteoma (a benign bony tumour).
  - Pain arising from the joint can be well localized, worsens on performing the movement of the affected joint.
  - Muscular pain is usually described as stiffness and is poorly localized, and aggravated by use of the muscle. It is sometimes associated with muscular weakness such as poliomyositis. Partial muscular tears may be painful, but comlete rupture is relatively pain free.
  - Fracture pain is sharp and stabbing, aggravated by attempting the movement or use and relieved by rest and splintage.
  - Shooting pain often caused by mechanical trapping of a peripheral nerve.
  - Bruising, looseness of the joint, pain, popping or snapping sound, swelling, difficulty in bearing the weight on affected limb and weakness of the joint may be observed in case of affliction of the ligament of the body.
  - Tendons will connect the muscles to the bones which are fibrous connective structures. The person will have pain while moving the muscle involved in the process. In this occasion, the person will also have difficulty in bearing the weight on the affected limb.
- In this section, fibromyalgia **(see Figure 203)** will be discussed. This is a common nonarticular disorder of unknown cause characterized by generalized aching (sometimes severe); widespread tenderness of muscles, areas around tendon insertions and adjacent soft tissues; muscle stiffness; fatigue and poor sleep. Diagnosis is clinical.

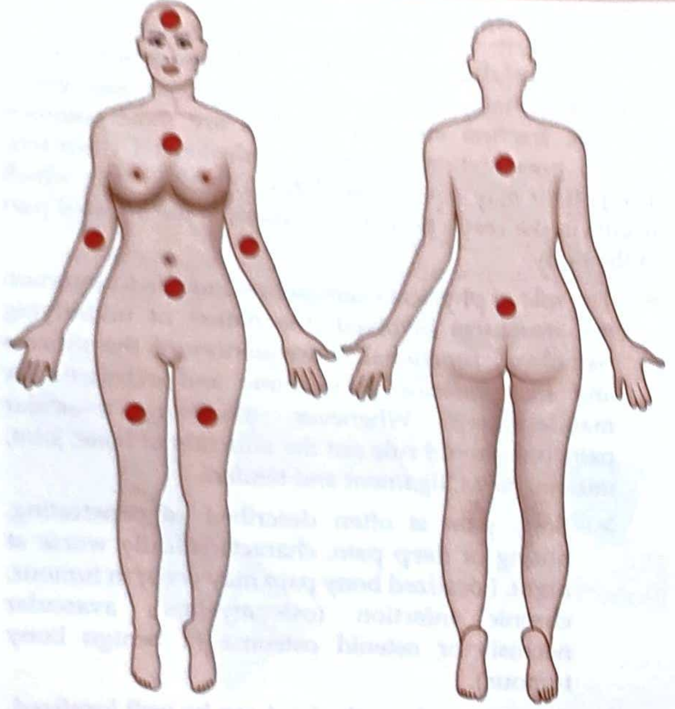


Figure 203: Fibromyalgia

- In this disease, any fibromuscular tissues may be involved, especially those of the occiput, neck, shoulders, thorax, low back and thighs. There is no specific histologic abnormality. It is 7 times more common in females, usually young or middle aged women, but can occur in men, children and adolescents. Because of gender difference, it is often overlooked in males. Sometimes, it occurs in patients with systemic rheumatic symptoms.
- The cause is unknown, but disruption of stage 4 sleep may contribute, as can emotional stress. Patients may tend to be perfectionists.
- Symptoms and signs are generalized, in contrast to localized soft tissue pain and tenderness. Stiffness and pain frequently begin gradually and diffusely and have an achy quality for a period of at least 3 months. Symptoms can be exacerbated by environmental or emotional stress, poor sleep, trauma or exposure to dampness or cold.
- Patients tend to be stressed, tense, anxious, fatigued, ambitious and sometimes depressed. May patients have irritable bowel syndrome symptoms or migraine or tension headaches. Pain may worsen with fatigue, muscle strain or overuse. Specific discrete areas of muscle (tender points) may be tender when palpated. To do the examination, the clinician has to do digital palpation with a force of about 4 kg.
- Diagnosis is clinical.
  - Generalized pain and tenderness, especially if disproportionate to physical findings
  - Negative laboratory results despite widespread symptoms
  - Fatigue as the predominant symptom
- As far as prognosis of the disease is concerned, this disease is tends to be chronic but may remit spontaneously if stress reduces. It can also recur at regular intervals.

## Muscular Dystrophy

**Muscular dystrophies are inherited, progressive muscle disorders resulting from defects in one or more genes needed for normal muscular function. They are distinguished by the selective distribution of weakness and the specific nature of the genetic abnormality involved.**

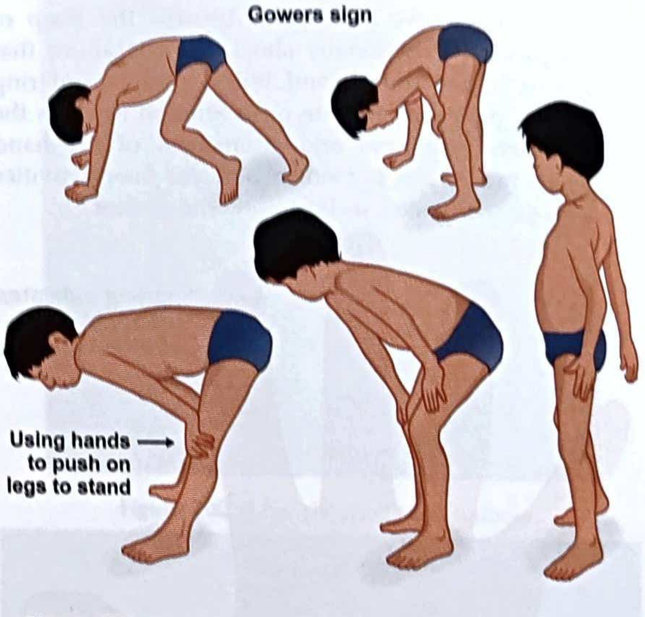


Figure 204: Gower's sign in Duchenne muscular dystrophy

- Duchenne muscular dystrophy is the most common and severe form of muscular dystrophy. Becker dystrophy, although closely related, has a later onset and causes milder symptoms. Other forms include Emery-Driesfuss dystrophy, myotonic dystrophy, limb girdle dystrophy, facio scapulo humeral dystrophy and congenital dystrophies. In this, most commonly observed Duchenne and Becker muscular dystrophies are discussed.
- Duchenne and Becker muscular dystrophies are X linked recessive disorders characterized by progressive muscular weakness caused by muscle fibre degeneration. Becker muscular dystrophy has later onset and causes milder symptoms. Diagnosis is suggested clinically and is confirmed by analysis of the protein product (dystrophin) of the mutated gene.
- These dystrophies are caused by mutations at Xp21 focus.

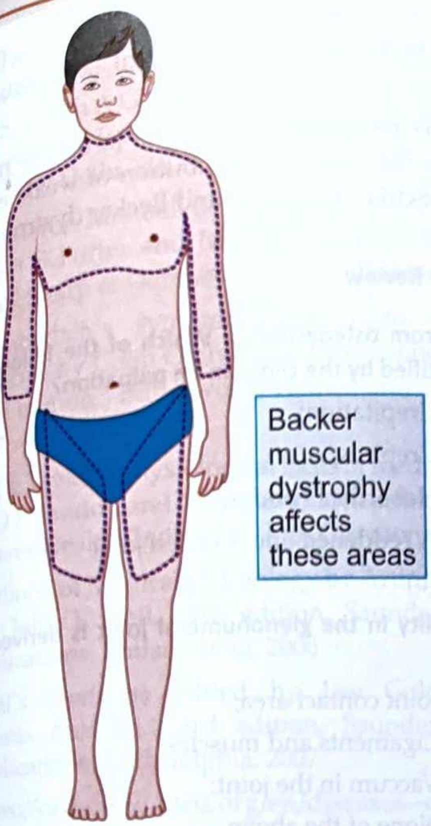


Figure 205: Becker dystrophy

- Duchenne muscular dystrophy: manifests between ages 2 and 3 years. Weakness affects proximal muscles, typically in the lower limbs initially. Children frequently toe walk and have a waddling gait and lordosis.
- They fall frequently and have difficulty running, jumping, climbing stairs and raising from the floor (Gower's sign).
- Progressive weakness is steady, and limb flexion contractures and scoliosis develop.
  - Firm pseudohypertrophy (fatty and fibrous replacement of certain enlarged muscle groups, notably in the calves) develops.
  - Most children are confined to a wheelchair by 12 and die of respiratory complications by age of 20 years.
- **Becker dystrophy (see Figure 205):** This disorder becomes typically symptomatic much later and is milder. Ambulation is usually preserved until at least age 15 and many children remain ambulatory into adulthood. Most affected children survive into their ages 30s and 40s.
- Diagnosis is done by immunostaining analysis of dystrophin and DNA mutation analysis.

## Key summary of the chapter

- Osteoarthritis (OA) is a chronic degenerative inflammation of joints characterized by disruption and partial loss of join cartilage along with other joint changes, including bone hypertrophy (osteophyte formation). Symptoms include gradually developing pain aggravated or triggered by activity, stiffness lasting < 30 minutes on awakening and after inactivity and occasional joint swelling. Diagnosis is confirmed by x rays of the affected joint.
- Osteoporosis is a progressive, metabolic bone disease that decreases bone density (bone mass per unit volume), with deterioration of bone structure. Skeletal weakness leads to fractures with minor or inapparent trauma, particularly in the thoracic and lumbar spine, wrist and hip. Acute or chronic back pain is common. Diagnosis is by dual energy x ray absorptiometry.
- Frozen shoulder is a clinical condition where in the movements of the affected shoulder (glenohumoral joint) become limited associated with severe pain and increased stiffness.
- Calcaneal spur is a bony projection forwards from the undersurface of the calcaneal tuberosity. It is nothing but ossification of the plantar fascia at its calcaneal end. This has very little significance so far as the pain in the heel is concerned. This means if a patient complains of pain in the heel and on x ray, one can find the presence of calcaneal spur, the clinician cannot infer that the calcaneal spur is the cause of pain. Very often, inflammation of the soft tissue or bursa beneath the spur gives rise to pain.
- Plantar fasciitis, a painful inflammation of the fibrous band of connective tissue (plantar fascia) that runs along the bottom of the foot and connects the heel bone to the ball of the foot. In this condition, the person will have unbearable pain under heel particularly during walking when the weight of the body is carried by the heel.
- Tennis elbow is a clinical condition where the patient complains of pain in the lateral epicondyle of the humerus where the extensor group of muscles of forearm is attached. This is also called as lateral epicondylitis. This is more often seen among the tennis players and hence the name, but quite a number of sufferers of this condition have never played tennis. The pain is aggravated when the patient tends to extend the wrist and the fingers, more so against resistance. Diagnosis is done by x ray or MRI.
- Carpal tunnel syndrome is a clinical condition which is responsible for the compression of the carpel tunnel. This condition is an example of stenosing tenovaginitis. Here, the cause is not only thickening of the flexor retinaculum, but involvement of the synovial sheaths of the flexor tendons or dislocation of lunate bone which compresses on the contents of this osseo-fibrous canal, median nerve in particular. The main presenting complaint is difficulty in flexing the fingers.

- Fibromyalgia is a common nonarticular disorder of unknown cause characterized by generalized aching (sometimes severe); widespread tenderness of muscles, areas around tendon insertions and adjacent soft tissues; muscle stiffness; fatigue and poor sleep. Diagnosis is clinical.
- Muscular dystrophies are inherited, progressive muscle disorders resulting from defects in one or more genes needed for normal muscular function. They are distinguished by the selective distribution of weakness and the specific nature of the genetic abnormality involved. Duchenne muscular dystrophy and Becker dystrophy are two common forms of muscular dystrophies observed frequently.

## Self-Assessment: Questions for Review

### Short essay questions

- Describe osteoarthritis
- Explain osteoporosis
- Describe frozen shoulder syndrome
- Describe calcaneal spur
- Describe plantar fasciitis
- Describe tennis elbow
- Describe carpal tunnel syndrome
- Explain muscular dystrophy

### MCQs

**1. Gower's sign is positive in which of the following disease?**

a. Calcaneal spur;
b. Plantar fasciitis;
c. Fibromyalgia;
d. Duchenne muscular dystrophy

*Answer*: (d)

**2. Which part of the following is afflicted in tennis elbow?**

a. Medial epicondyle of humerus;
b. Lateral epicondyle of the humerus;
c. Radius;
d. Ulna

*Answer*: (b)

**3. Heberden's nodes are observed in which of the following disease?**

a. Osteoarthritis;
b. Muscular dystrophy;
c. Carpal tunnel syndrome;
d. Frozen shoulder syndrome

*Answer*: (a)

**4. A 54 years old male individual is diagnosed with the disease osteoarthritis. Which of the following is most likely experiencing?**

a. Joint swelling;
b. Hypermobility of the joint;
c. Contracture;
d. No swelling

*Answer*: (a)

**5. 60 years old female patient is diagnosed to have suffering from osteoarthritis. Which of the following can be identified by the clinician on palpation?**

a. Crepitation;
b. Crepitus;
c. Heberden's nodes;
d. A reddened and swollen joint

*Answer*: (b)

**6. Stability in the glenohumeral joint is derived primarily from**

a. Joint contact area;
b. Ligaments and muscles;
c. Vaccum in the joint;
d. None of the above

*Answer*: (a)

**7. Which of the following nerve is compressed in carpal tunnel syndrome?**

a. Radial nerve; b. Ulnar nerve;
c. Median nerve; d. Lateral cutaneous nerve

*Answer*: (c)

**8. Dual energy x ray absorptiometry (DEXA) is used in the diagnosis of**

a. Osteoarthritis; b. Muscular dystrophy
c. Frozen shoulder syndrome; d. Osteoporosis;

*Answer*: (d)

**9. Cozen's test is performed to diagnose which of the following?**

a. Frozen shoulder syndrome;
b. Carpal tunnel syndrome;
c. Calcaneal spur;
d. Muscular dystrophy

*Answer*: (b)

**10. A clinician views x ray left knee joint of 60 years old male patient and he observes the reduced joint space of the left knee joint with radiolucency on the joint surfaces. He makes the diagnosis of**

a. Osteoarthritis;
b. Osteoporosis;
c. Rheumatoid arthritis;
d. Gout

*Answer*: (a)

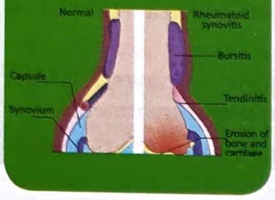
## Chapter resources

- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Cecil's medicine edited by Lee Goldman and Dennis Ausiello, 23rd edition, Saunders Elsevier publications, Philadelphia, 2007
- https://orthoinfo.aaos.org/en/diseases--conditions/osteoarthritis/
- https://www.sciencedirect.com/science/article/pii/S1063458406003281
- https://www.mdpi.com/1422-0067/24/19/14583
- https://m.indiamart.com/proddetail/frozen-shoulder-treatment-service-19011368012.html
- https://frozenshoulderclinic.com/x-rays/
- https://www.webmd.com/pain-management/heel-spurs-pain-causes-symptoms-treatments
- https://en.wikipedia.org/wiki/Calcaneal_spur#:~:-text=reduction%20of%20pain.-,Prognosis,after%20the%20onset%20of%20symptoms.
- https://en.m.wikipedia.org/wiki/File:Projectional_radiography_of_calcaneal_spur.jpg
- https://www.healthline.com/health/plantar-fasciitis#overview
- https://www.fasciitis.com/plantar-fasciitis-diagnosis/
- https://www.cfaortho.com/media/news/2023/07/tennis-elbow-symptoms-causes-and-treatments
- https://www.researchgate.net/figure/Radiograph-of-the-elbow-showing-calcification-of-the-lateral-epicondyle_fig2_291183531
- https://mrionline.com/diagnosis/lateral-epicondylitis/
- https://www.facebook.com/physiotherapytool/photos/a.353330381911406/583532298891212/?type=3
- https://orthofixar.com/special-test/mills-test/?expand_article=1
- https://orthoinfo.aaos.org/en/diseases--conditions/carpal-tunnel-syndrome/
- https://www.sonexhealth.com/patients/carpal-tunnel-syndrome/
- https://en.wikipedia.org/wiki/Fibromyalgia
- https://ordindia.in/duchenne-muscular-dystrophydmd/
- https://kidshealth.org/en/parents/becker-md.html
- https://www.studocu.com/ph/document/lyceum-northwestern-university/physical-therapy/shoulder-complex-mcq/19029246

***

CHAPTER

45


Normal
Rheumatoid synovitis
Bursitis
Capsule
Tendinitis
Synovium
Erosion of bone and cartilage

# Amavata

## Learning Objectives

- ⇨ To learn the concept of Amavata
- ⇨ To simplify the Nidana and Samprapti of Amavata
- ⇨ To understand the Lakshana of Amavata
- ⇨ To learn the types of Amavata
- ⇨ To learn the Sadhyasadhyata of Amavata

## Introduction

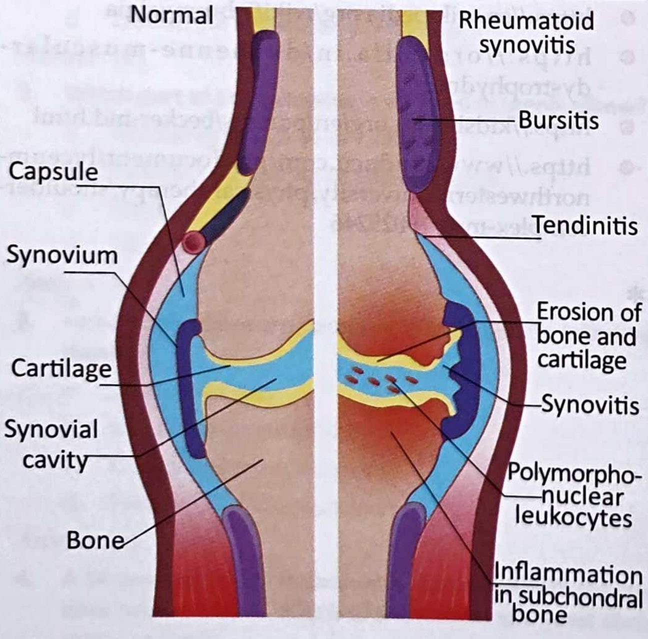

Normal
Rheumatoid synovitis
Bursitis
Capsule
Tendinitis
Synovium
Erosion of bone and cartilage
Cartilage
Synovitis
Synovial cavity
Polymorpho-nuclear leukocytes
Bone
Inflammation in subchondral bone

**Figure 206:** Normal joint and joint of rheumatoid arthritis

**Amavata consists of two terms –**

1. *Ama* and
2. *Vata*.

- These are two distinct entities where specific aetiological factors are leading to the vitiation of *Ama* as well as *Vata*.
- *Ama* is vitiated by *Santarpanaja Nidana* (body tissue nourishing factors) and *Vata* is vitiated by *Apatarpanaja Nidana* (body tissue depleting factors).
- *Amavata* is mainly a disease of *Rasavaha Srotas*.
- Depending upon the chronology of development of symptoms, we can observe the involvement of *Annavaha, Rasavaha, Asthivaha* and *Majjavaha Srotas*.
- We can notice the involvement of *Abhyantara, Bahya* and *Madhyama Rogamarga* sequentially based on the progression of the disease.
- The disease is characterised by swelling of the joints associated with multiple joint pain preceded and associated with impaired appetite.
- As the disease involves the *Madhyama Rogamarga*, we can substantiate the incurability of the illness, as it is difficult to bring the vitiated *Doshas* from *Madhyama Rogamarga* to *Koshtha* when compared to the displacement of vitiated *Dosha* from *Shakha* to *Koshtha*.

## Nidana of Amavata

विरुद्धाहारचेष्टस्य मन्दाग्नेर्निश्चलस्य च।
स्निग्धं भुक्तवतो हा व्यायामं कुर्वतस्तथा॥

Ma.Ni. – 25/1

- The causative factors of *Amavata* are:

- *Viruddha*[1] *hara*[2] (Indulgence in unwholesome diet)
- *Viruddha Cheshta*[3] (indulgence in unwholesome habits)
- *Nischala*[4] (lack of physical activity)
- *Mandagni*[5] (reduced digestive fire)
- *Snigdham Bhuktavato Vyayamam Kurvatah*[6] (performing the physical activity on consumption of unctuous substances)

- These aetiological factors will vitiate the *Vata Dosha* and promote the accumulation of *Ama* in *Amashaya*.

## Samprapti of Amavata

वायुना प्रेरितो ह्यामः श्लेष्मस्थानं प्रधावति।
तेनात्यर्थं विदग्धोऽसौ धमनीः प्रतिपद्यते॥2॥
वातपित्तकफैर्भूयो दूषितः सोऽन्नजो रसः।
स्रोतांस्यभिष्यन्दयति नानावर्णोऽतिपिच्छिलः॥3॥
जनयत्याशु दौर्बल्यं गौरवं हृदयस्य च।
व्याधीनामाश्रयो होप आमसंशोऽतिदारुणः॥4॥
युगपत्कुपितावन्तस्त्रिकसन्धिप्रवेशको।
स्तब्धं च कुरुतो गात्रमामवातः स उच्यते॥5॥ Ma.Ni. – 25/2-5

- The vitiated *Vata* and already accumulated *Ama* in the *Amashaya* will move into the sites of *Kapha Dosha* (i.e. *Amashaya, Uras, Shiras, Kantha* and *Sandhi*) leading to the filling of these sites and *Dhamani* with waxy material.
- Thus, there will be the vitiation of *Vata, Pitta* and *Kapha* which further vitiates *Ahara Rasa* which will have different colours.
- This *Ahara Rasa* will move into *Rasavaha Srotas* resulting in the blockage of channels.
- The whole pathophysiology leads to the clinical features such as weakness of the individual, heaviness of the precordium.
- The main culprit in the manifestation of the disease is termed as *Ama* and is the root cause of many distressing diseases.
- Simultaneously vitiated *Dosha* i.e. *Vata* and *Kapha* will enter the *Trika Sandhi* and all joints leading to stiffness of the body leading to the manifestation of *Amavata*[7].

---

GK

[1] Charaka Samhita in his 26th chapter of Sutra Sthana, has mentioned different examples of Viruddha Ahara such as consumption of meat of domestic animals such as chicken with honey or jaggery or milk or blackgram or sprouted cereals etc or consumption of ghee and honey in equal quantity etc. Refer verses 84 to 106 of 26th chapter of Sutra Sthana of Charaka Samhita for the detailed description of Viruddha concept.

[2] **विरुद्धाहारः संयोगादिविरुद्धः,** Madhu; Ma.Ni.- 25/1
The term Viruddha Ahara refers to consumption of milk and fish together frequently and this is an example of Samyoga Viruddha

[3] **विरुद्धा च चेष्टा यथा- वायजलप्रतरणादि।** Madhu; Ma.Ni. – 25/1
The term Viruddha Cheshta refers to indulgence in exercise, sexual intercourse and swimming etc activities in a state of indigestion. These activities initially lead to the shift of the blood from the alimentary canal to the skeletal muscles. This mechanism will worsen the process of digestion, thereby macromolecular substances cannot be converted into absorbable micromolecular substances, thus, there will partially digested substances may remain in the alimentary canal, which will move into the blood stream via lymphatic system into circulatory system.

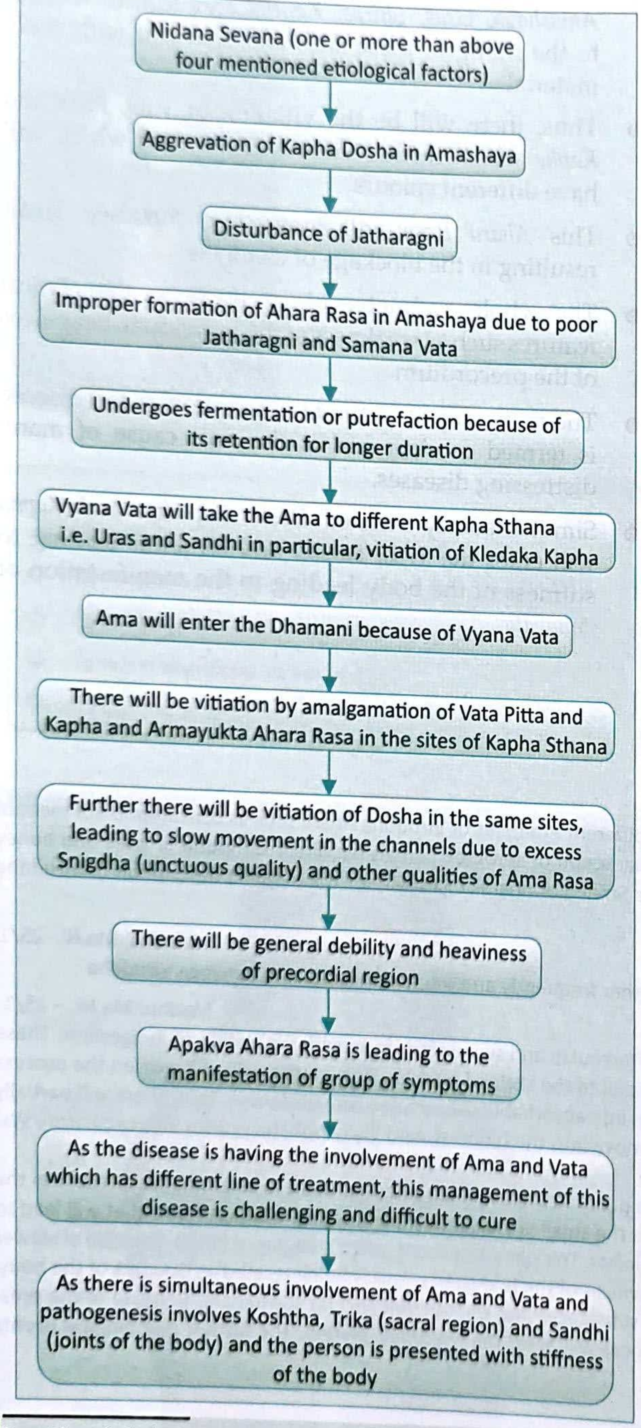
[4] When an individual is having lack of physical activity, that will lead to poor circulation in the body. As there is inflammation present in the joints, that will lead to the more amount of transfer of the fluid from the small vessels into the interstitial compartment, that will lead to slower movement of the blood in the small vessels in the areas of the joints. This phenomenon is called sludging of blood. Because of slower movement of the blood in the small vessels, the person will have heaviness of the body parts. This is being termed as Gourava of the body.

[5] Mandagni is responsible for the poor conversion of macromolecular substances into the micromolecular substances. Because of the presence of Ama (poor digested macromolecular to intermediate substances will enter the lymphatic system. The further pathological events are similar to the events described in Nischala context.

[6] In this, there are two aspects one has to consider:
1. Person consumes Snigdha (unctuous) substances
2. Performing Vyayama (exercise) after consumption of unctuous substances
When a person does exercise, after the consumption of food normal amount of food, there will be shift in the circulation of blood from the alimentary canal to the musculo skeletal system, bones, joints, skeletal muscles in particular. If the person consumes unctuous substances, there will be much delay in the digestion of food substances as these substances are having heavier molecular weight. Because of the heavier weight, the food substances remain in the Amashaya (stomach) for longer time (more than 2 hours). This will lead to the mucosal damage of the stomach because of bacterial proliferation and inflammation.
Because of the inflammation, the person starts to reduce the physical activity. When there is reduced physical activity, Due to reduced physical activity, the blood circulation usually slows down around the musculo skeletal system, thus there is more chance of inflammatory reaction in the musculo skeletal system.

[7] As far as the Nidana of Amavata is concerned, the NIdana mentioned in this context are the perfect example of the Ubhaya Hetu where there will be exposure to aetiological factors which leads to involvement of manifestation of Ama and vitiation of Vata are simultaneously observed in an individual. Vitiation of Ama leads to the increase of Kapha Dosha and exposure to etiological factors leading to the vitiation of Vata Dosha we are going to observe increase of Vata Dosha.

## Flowchart for the pathogenesis of Amavata



Nidana Sevana (one or more than above four mentioned etiological factors)

Aggrevation of Kapha Dosha in Amashaya

Disturbance of Jatharagni

Improper formation of Ahara Rasa in Amashaya due to poor Jatharagni and Samana Vata

Undergoes fermentation or putrefaction because of its retention for longer duration

Vyana Vata will take the Ama to different Kapha Sthana i.e. Uras and Sandhi in particular, vitiation of Kledaka Kapha

Ama will enter the Dhamani because of Vyana Vata

There will be vitiation by amalgamation of Vata Pitta and Kapha and Armayukta Ahara Rasa in the sites of Kapha Sthana

Further there will be vitiation of Dosha in the same sites, leading to slow movement in the channels due to excess Snigdha (unctuous quality) and other qualities of Ama Rasa

There will be general debility and heaviness of precordial region

Apakva Ahara Rasa is leading to the manifestation of group of symptoms

As the disease is having the involvement of Ama and Vata which has different line of treatment, this management of this disease is challenging and difficult to cure

As there is simultaneous involvement of Ama and Vata and pathogenesis involves Koshtha, Trika (sacral region) and Sandhi (joints of the body) and the person is presented with stiffness of the body

## Samprapti Ghataka of Amavata

- **Dosha :** *Vata* → *Samana, Prana* and *Vyana Vata*
  : *Pitta* → *Pachaka*
  : *Kapha* → *Shleshaka* and *Kledaka Kapha*
- **Dushya Dhatu:** *Rasa, Asthi* and *Majja*
  *Upadhatu:* *Sira* and *Snayu*
  *Sharirka Mala:* *Purisha*
  *Dhatu Mala:* *Kapha*
- **Srotas:** *Annavaha, Rasavaha, Asthivaha* and *Majjavaha Srotas*
- **Srotodushti Prakara:** *Sanga* and *Vimargagamana*
- **Agni:** *Jatharagnimandya* and *Rasa Dhatvagnimandya*
- **Ama :** *Jatharagni* and *Rasadhatvagnijanya*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Sandhi*
- **Rogamarga :** *Abhyantara, Bahya* and *Madhyama* (in the order of clinical manifestation)
- **Vyadhi Svabhava :** *Chirakari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*
- **Vyadhi Bheda:** *Adhyatmika, Doshabala Pravritta, Sharirika*

**Purvarupa of the disease:** No prodromal symptoms of the disease *Amavata* is mentioned in any of the *Ayurvedic* literatures.

## Samanya Lakshana of Amavata

अङ्गमर्दोऽरुचिस्तृष्णा ह्यालस्यं गौरवं ज्वरः।
अपाकः शूनताऽङ्गानामामवातस्य लक्षणम्॥6॥ Ma.Ni. – 25/6

- *Angamarda*[8] (bodyache)
- *Aruchi*[9] (tastelessness)
- *Trishna*[10] (thirst)
- *Alasya* (laziness)[11]
- *Gourava* (heaviness of the body parts)[11]

---

GK

[8] The clinical presentations are pertaining to musculo skeletal system, bones and joints in particular. On examination under microscope, inflamed synovial joints show the presence of increased inflammatory cell infiltrates such as CD4+ T cells, plasma cells, macrophages, neutrophils etc. This indicates the person with inflammatory changes in the joints will have severe bodyache at the parts involved during the progression of pathological events. This may be the reason for the development of body ache in the patients of Amavata.

[9] When the person is having events of inflammation in the musculo skeletal system, there will be shift of the blood circulation from the alimentary canal to the intravascular thence to interstitial compartment. Due to reduced secretion in the alimentary canal, the person may have reduced secretions in the oral cavity also. Thus, the person may have presentation of Aruchi.

[10] As the person will have involvement of major and symmetrical joints, shift of the fluid from the intravascular compartment to the interstitial compartment takes place, this will shrink the intravascular compartment, thus the person may have the manifestation of thirst.

[11] In Amavata (rheumatoid arthritis), clinical features are generalised, this will lead to the excess movement of fluid from the capillary to the interstitial compartment, this will lead to the slow movement of blood in the capillaries, which is termed as sludging of blood. The term sludged blood refers to slow movement of blood in small blood vessels owing to the reduction of fluid in the intravascular compartment. Because of all these the person may have laziness and heaviness of body parts.

- *Jvara*[12] (fever)
- *Apaka*[13] (impaired digestion)
- *Anganam Shunata*[14] (swelling of the body parts)

## Pravriddha Amavata Lakshana

सकष्टः सर्वरोगाणां यदा प्रकुपितो भवेत्।
हस्तपादशिरोगुल्फत्रिकजानूरुसन्धिषु।।7 ।।
करोति सरुजं शोथं यत्र दोषः प्रपद्यते स
देशो रुज्यतेऽत्यर्थं व्याविद्ध इव पृश्चिकैः।।8 ।।
जनयेत्सोऽग्निदौर्बल्यं प्रसेकारुचिगौरवम्।
उत्साहहानिं वैरस्यं दाईं च बहुमूत्रताम्।।9 ।।
कुक्षौ कठिनतां शुलं तथा निद्राविपर्ययम्।
वृट्छर्दिभ्रममूर्च्छाथ हृद्ग्रहं विविबद्धताम्।
जाड्यान्त्रकूजमानाहं कष्टांश्चान्यानुपद्रवान्।।1 ।। Ma.Ni. – 25/7-10

- The disease is associated with painful swellings of joints of *Hasta* (hand), *Pada* (feet), *Shira* (head), *Gulpha* (ankle region), *Trika* (sacral region), *Janu* (knee joint), *Uru* (thigh)
- The nature of pain is similar to scorpion bite i.e. pertaining to the joint only.
- The disease is also associated with *Agnidaurbalya* (weak digestive fire), *Praseka* (excessive salivation), *Aruchi* (tastelessness), *Gaurava* (heaviness of the body parts), *Utsahahani* (lack of enthusiasm), *Vairasya* (abnormal taste perception), *Daha* (burning sensation), *Bahumutrata* (excess frequency of micturition), *Kukshi Kathinata* (hardness of the abdomen), *Shula* (pain abdomen), *Nidra Viparyaya* (sleep disturbances), *Trishna* (thirst), *Chardi* (vomiting), *Bhrama* (giddiness), *Murcha* (altered state of consciousness), *Hrid Graha* (stiffness of the chest), *Vid Vibaddhata* (constipation), *Jadya* (sluggishness), *Antrakujana* (gurgling sounds in the abdomen), *Anaha* (distension of the abdomen).

## Bheda of Amavata

*Sankhya Samprapti* of *Amavata* is 7 types depending upon the dominance of *Dosha* in the individuals.

पिचात्सदाहरागं च सशूलं पवनानुगम्।
स्तिमितं गुरुकड़ूं च कफदुष्टं तमादिशेत्।।1 1 ।। Ma.Ni. – 25/11

*Vata* dominant *Amavata* is associated with *Shula* (pain); *Pitta dominanat Amavata* is associated with *Daha* (burning sensation) and *Raga* (redness) and *Kapha domianant Amavata* is associated with *Stimita* (feeling of covering of body with wet clothes), Guru (heaviness of the body)and *Kandu* (itching).

### 7 types of Amavata

1. *Vataja Amavata*
2. *Pittaja Amavata*
3. *Kaphaja Amavata*
4. *Vatapittaja Amavata*
5. *Pittakaphaja Amavata*
6. *Vatakaphaja Amavata*
7. *Sannipataja Amavata*

## Sadhyasadhyata[15] of Amavata

एक्दोषानुगः साध्यो द्विदोषो याप्य उच्यते।
सर्वदेहचरः शोथः सः कृच्छ्रः सान्निपातिकः।।1 2 ।। Ma.Ni. – 25/12

- *Amavata* manifested due to single *Dosha* vitiation is considered as *Sadhya* (easily curable disease)
- *Amavata* manifested due to dual *Dosha* vitiation is considered as *Yapya* (manageable disease)
- *Amavata* manifested due to *Tridosha* vitiation and there is swelling of whole body, then such disease is difficult to cure

**Key summary of the chapter**

- *Amavata* consists of two terms: *Ama* and *Vata*. Here, *Ama* is formed in the body because of excess consumption of substances which increase *Kapha* and *Vata* will be vitiated in the body because of the excess exposure of the body to *Vata* vitiating factors. The causative factors for the manifestation of *Amavata* are considered to be *Dosha* and *Vyadhi* - *Ubhaya Hetu* as these two are separately responsible for the increase of *Ama* and *Vata* in the body.
- The causative factors of *Amavata* are consumption of *Viruddha Ahara* (unwholesome diet), *Viruddha Cheshta* (unwholesome habits), *Nishchala* (lack of physical activity), *Mandagni* (reduced digestive fire) and performing

---

[12] Inflammatory events happening in the joint spaces in most of the body parts, the person may have local raise of body temperature. In this situation, the person will lack of appetite secondary to reduction in the blood supply in the alimentary canal and simultaneous increase of blood supply to the inflamed joints of the body.

[13] This is attributable to similar mechanism happening in the diseased individual which is developing in Arochaka context.

[14] This is attributable to increased inflammatory reactions happening in widespread joints of the body. This inflammatory event will lead to the more amount of influx of inflammatory fluid containing inflammatory markers to accumulate in the inflamed joints. Thus, the person with inflammatory joint involvement, will have mild to moderate to severe joint swelling.

[15] Sadhyasadhyata of any disease is predicted by various factors such as duration of the illness, involvement of number of joints, involvement of number of vitiated Dosha, involvement of Srotas, Agni etc plays a major role. For example, in Madhava Nidana, the main criteria in predicting Sadhyasadhyata of Amavata, number of Dosha vitiation is taken into consideration. If the single Dosha involved, treatment of the disease is easy. In case of multitude of vitiated Dosha are involved, curability of the illness is little bit debatable. In Pitta and Kapha dominant Amavata, line of treatment is totally different, Santarpana (nourishment) is ideal in Pitta dominant situation and Apatarpana (depletion of nourishment from the body) is ideal in Kapha dominant Amavata. that is why Pitta Kapha dominant Amavata, is difficult to cure.

*Vyayama* after consuming *Snigdha Ahara* (unctuous substances).

- Consumption of these aetiological factors will lead to the vitiation of *Ama* and *Vata*, thereby responsible for affliction of Rasa, derangement of *Rasavaha Srotas* is observed with *Sanga* and *Vimargagamana* during the progression of the disease.
- No *Purvarupa* (prodromal symptoms) are mentioned in the *Ayurveda* textbooks.
- *Angamarda* (bodyache), *Aruchi* (tastelessness), *Trishna* (thirst), *Alasya* (laziness), *Gourava* (heaviness of the body parts), *Jvara* (raised body temperature), *Apaka* (indigestion), *Anganam Shunata* (swelling of the body parts) are the *Samanya Lakshana* of *Amavata* mentioned in *Madhava Nidana*.
- As far as *Sankhya Samprapti* of *Amavata* is concerned, 7 types of *Amavata* are mentioned depending upon the *Dosha* dominance during the progression of the disease. They are *Vataja, Pittaja, Kaphaja, Vatapittaja, Pittakaphaja, Kaphavataja, Vatapittakaphaja*.
- *Vyavidhha Iva Vrischikaih* – localised severe pain in the joints is the characteristic feature of advanced stage of *Amavata*.
- *Amavata* which is manifested due to vitiation of single *Dosha* is easily curable; *Amavata* with dual *Dosha* involvement is difficult to cure and *Amavata* with involvement of all three *Dosha* is very difficult to cure.

## Self-Assessment: Questions for Review

### Long essays questions

- Define Amavata. Explain Nidana, Samprapti, Lakshana, Sadhyasadhyata of Amavata
- Explain Nidana Panchaka of Amavata

### Short essays questions

- Explain Nidana and Samprapti of Amavata
- Describe the Lakshana of Amavata
- Explain Pravriddha Amavata Lakshana

### Short answers

- Define Amavata
- Enumerate the Sankhya Samprapti of Amavata
- Explain in brief about Sadhyasadhyata of Amavata
- Write the Samanya Lakshana of Amavata

### MCQs

**1. As per Madhava Nidana, the types of Amavata are**

a. 3; b. 4;
c. 5; d. 7

*Answer*: (d)

**2. Sa rujyate Atyartham Vyaviddha Iva Vrischikai is the specific feature of**

a. Amavata; b. Ushnavata;
c. Vatashonita; d. Kshinavata

*Answer*: (a)

**3. Separate chapter on Amavata is mentioned in**

a. Charaka Samhita; b. Sushruta Samhita;
c. Ashtanga Hridaya; d. Madhava Nidana

*Answer*: (d)

**4. Type of Srotodushti involved in the manifestation of Amavata is/are**

a. Atipravritti;
b. Sanga;
c. Sanga and Vimargagamana;
d. Siragranthi

*Answer*: (c)

**5. Kapha dominant Amavata is considered to be**

a. Sadhya;
b. Krichrasadhya;
c. Asadhya;
d. All of the above

*Answer*: (a)

### Chapter resources

- https://orthoinfo.aaos.org/en/diseases--conditions/rheumatoid-arthritis/
- Madhava Nidana – 25th chapter: Amavata Nidana
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

## CHAPTER

## 46

# Vatarakta

**Learning Objectives**

- ⇨ To learn the concept of Vatarakta with synonyms
- ⇨ To learn the Nidana and Samprapti of Vatarakta mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To learn Samprapti of Avasthika Vatarakta
- ⇨ To enlist the Vidhi Samprapti of Vatarakta
- ⇨ To learn Purvarupa, Upadrava, Sadhyasadhyata of Vatarakta
- ⇨ To know the differences between Sandhigata Vata, Amavata and Vatarakta

## Introduction

वातरक्ताभ्यां जनितो व्याधिः वातरकं Chakra, Ca.Ci. – 29/2

किंवा वातर एव अवस्थान्तरप्राप्ते वातरक्तम् Chakra, Ca.Ci. – 29/2

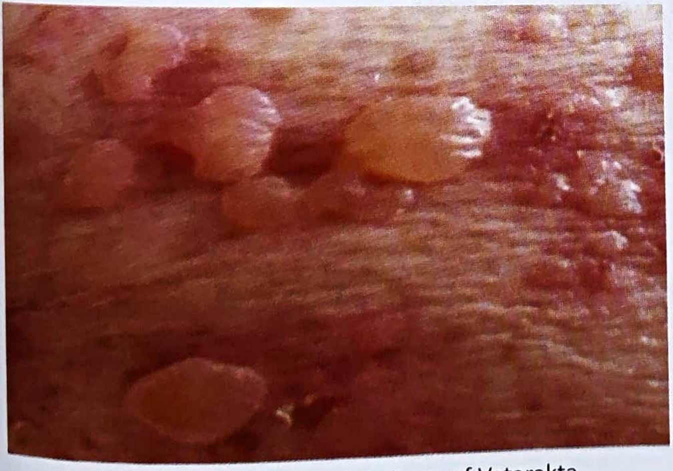


**Figure 207:** Pratyatma Lakshana of Vatarakta

*Vatarakta* or *Vatashonita* or *Vatasrik* is a spectrum of diseases where we may observe the involvement of vitiated *Vata Dosha* and *Rakta Dushti* altogether at a particular time. In this disease manifestation, *Vata* and *Rakta* are not having any relation unlike *Rakta* and *Pitta*. Yet, both *Vata Dosha* and *Rakta Dhatu* separately undergo vitiation, but combines together to manifest *Vatarakta* in *Tvak, Sira, Snayu, Asthi* and *Sandhi* as discolouration of skin and pain in joints. As far as the commencement of the disease is concerned, *Vatarakta* is considered as *Adhyatmika Vikara, Doshabala Pravritta Vikara* and *Pakvashayasamuttha Vikara* and *Sharirika Vikara*. Primary *Srotas* afflicted in this disease is *Raktavaha Srotas* with *Sanga* and *Vimargagamana* as the nature of *Srotodushti*.

खुडं बातवलासाव्यमाख्यातं च नामभिः॥1 1॥ Ca.Ci. – 29/11

This disease is having the synonyms as *Khuda, Vatabalasa* and *Adhyavata*. In *Ayurveda* literatures, the term *Khuda* refers to *Sandhi* or joints. As joint involvement is observed in this spectrum of diseases, *Vatarakta* is also known as *Khuda Vata*.

**Vatabalasaka** – The *Shonita* (*Rakta*) gets strength by impeded function of vitiated *Vata*. Hence, *Vatashonita* is also termed as *Vatabalasaka*.

**Adhyavata** – as the disease more commonly observed in wealthy people. Hence, the name *Adhyavata* is used for the disease *Vatarakta*.

## Nidana of Vatarakta

लवणाम्लकारस्निग्धोष्णा जीर्णभोजनैः।
क्लिन्नशुष्काम्बुजानूपमांसपिण्याकमूलकैः॥5॥
कुलत्थमापनिप्पा वशाकादिपललेक्षुभिः।
दध्यारनालसौवीरशुक्ततत्रसुरासवैः॥6॥
विरुद्धाध्यशनक्रोधदिवास्वप्नप्रजागरैः।
प्रायशः सुकुमाराणां मिष्टान्नसुखभोजिनाम्॥7॥
अचङ्क्रमणशीलानां कुप्यते वातशोणितम्।

अभिघातादशुद्ध्या च प्रदुष्टे शोणिते नृणाम्॥8॥
कषायकटुतिक्ताल्परूक्षाहाराद्भोजनात्।
हेयोष्ट्रयानयानाम्बुक्रीडाप्लवनलङ्घनैः॥9॥
उष्णे चात्यध्ववैषम्याद्व्यवायाद्वेगनिग्रहात्। Ca.Ci. – 29/5-10

The etiological factors mentioned from *Lavana* till *Achankramana Shila* are responsible for the abnormality of *Rakta Dhatu*. From *Kashaya Rasa* substances onwards till *Vega Nigraha* are responsible for the vitiation of *Vata Dosha*.

- Excess consumption of *Lavana Rasa*[1] (salty taste) substances.
- Excess consumption of *Amla Rasa*[2] (sour taste) substances.
- Excess consumption of *Katu Rasa*[3] (pungent taste) substances.
- Excess consumption of *Kshara*[4] (alkaline or corrosive) substances.
- Excess consumption of *Snigdha*[5] (oily) substances.
- Excess consumption of *Ushna Virya*[6] (hot in potency) substances.
- Excess consumption of stale substances[7].
- Excess consumption of dry substances[8].
- Excess consumption of meat of aquatic animals.
- Excess consumption of meat of *Anupa* animals.
- Excess consumption of *Pinyaka*.
- Excess consumption of *Mulaka* (radish)[9].
- Excess consumption of horsegram, blackgram, beans, leafy vegetables, meat and sugar cane products.
- Excess consumption of curds, intoxicating substances, butter milk with sour taste[10].

---

**GK**

1 लवणः स्तम्भसङ्घातवन्ध विध्यापनोऽग्निकृत्॥1 2॥ स्नेहन, स्वेदनस्तीक्ष्णो रोचनश्छेद मेदकृत्।
सोऽतियुक्तोऽत्रपवनं खलति पलित वलिम्॥1 3॥ तृट्कुष्टविषवीसर्पान् जनयेत्क्षपयेद्बलन्। A.Hr.Su. – 10/12,13

When person consumes excess amount of Lavana Rasa substances, that will lead to the manifestation of Vatarakta. Lavana Rasa is having the Ap and Tejo Mahabhuta in its Panchabhautika composition, may be responsible for the vitiation of Rakta Dhatu in due course of time.

2 अम्लोऽग्निदीप्तिकृत्स्नग्धो हृद्यः पाचनरोचनः। उष्णवीर्यो हिमस्पर्शः प्रीणनः क्लेदनो लघुः॥1 0॥
सोऽस्यभ्यस्तस्तनोः कुर्याच्छैथिल्यं तिमिरं भ्रमम्॥1 1॥ पण्डुपाण्डुत्ववीसर्पशोफविस्फोटतृड्ज्वरान् A.Hr.Su. – 10/10-12

Amla Rasa is having Prithvi and Tejo Mahabhuta in its composition. When an individual consumes more amount of Amla Rasa substances will lead to the increase of Tejo Mahabhuta in the body, leading to the vitiation of Rakta Dhatu and thereby it may be a triggering factor for the manifestation of Vatarakta.

3 The Panchabhuta composition of Katu Rasa are Vayu and Tejo Mahabhuta. When an individual consumes more amount of Katu Rasa substances leading to the affliction of Rakta Dhatu, leading to the manifestation of Vatarakta if conducive environment for the progression of the disease is observed.

4 As per Sushruta, the qualities of Kshara substances are Ushna, Tikshna, Tejo Mahabhuta dominant. In its therapeutic dosage, consumption of Kshara substances will be responsible for the pacification of all Tridosha, but excess consumption of Kshara substances will vitiate Pitta Dosha and this may vitiate Rakta Dhatu in due course of time in case of conducive environment.

5 Snigdha (unctuousness) is one of the qualities of Pitta Dosha. if a person consumes unctuous substances in excess will lead to the vitiation of Pitta Dosha in the body. Based on the concept of Ashraya Ashrayi Bhava, vitiation of Pitta Dosha may indirectly indicates the affliction of Rakta Dhatu in the body.

6 As per Ayurveda literatures, Ushna (hot) quality is one of the important quality of Pitta Dosha. Therefore, excess consumption of Ushna Virya substances such as spicy substances will lead to vitiation of Pitta Dosha which in turn leads to the affliction of Rakta Dhatu in the body.

7 Excess consumption of stale substances implies that these food substances will remain in the stomach for 2 hours following closure of pyloric antrum soon after the food intake. This may lead to either inflammatory response in the stomach or vomiting which occurs due to reverse peristaltic movement or both.

- This will lead to the inadequate conversion of macromolecules into micromolecules, thus macromolecules may lead to the infection in the stomach region as we are consuming more carbohydrate rich diet.
- As stale foods are being taken, the infective process may occur even rapidly.
- This will lead to poor digestive fire (weakened gastric juice, inadequate conversion of pepsinogen to pepsin and incomplete conversion of macromolecules to intermediate molecules or micromolecules), thus the person may have gastric mucosal damage.
- As the macromolecules or intermediate molecules present in the stomach, they will pass through damaged gastric mucosa easily into interstitial compartment of stomach. This will further move into the lymphatic system and later enters into the superior vena cava after entry into the intravascular compartment at the junction of left internal jugular vein and left subclavian vein.
- Thus, this may lead to the circulation of incompletely transformed food substances into the blood stream, thus, leading to impurity of blood.

8 When an individual consumes excess quantity of dry substances, that will lead to the increase of Vata Dosha in the body. Due to this, there will be shrinking of either intravascular or interstitial or intracellular compartments or any two compartments or all compartments may happen. When there is shrinking of intravascular compartment occurs, this may lead to slowing of blood circulation. When there is slow blood circulation, that may lead to initiation of sludging of blood.

9 बालं दोषहरं, वृद्धं त्रिदोषं, मारुतापहम स्निग्धसिद्धं, विशुष्कं The qualities of radish are as mentioned in Ca.Su. – 27/168. Fresh radish will alleviate Dosha; overgrown radish will vitiate all three Dosha; if prepared with Snigdha substances, then this will decrease Vata Dosha in the body, dry radish will decrease Kapha and Vata vitiation.

10 These substances are having Ushna Virya and Amla Vipaka and thereby responsible for the vitiation of Pitta Dosha in the body and thus results in the affliction of Rakta Dhatu in due course of time.

- Consumption of food substances which are having mutually opposite qualities i.e. *Viruddhahara*
- Consumption of food substances without the **digestion of previously consumed meal**[11]
- **Anger**[12]
- **Sleeping during day time**[13]
- **Awakening at night time**[14]
- The people who are susceptible to have physiological disturbances for minor changes in their environment (*Sukumara*)
- The people who are having **sedentary lifestyle**[15]

### The Vata vitiating factors

- Excess consumption of ***Kashaya Rasa***[16] (astringent taste) substances
- Excess consumption of *Tikta Rasa* (bitter taste) substances
- Excess consumption of *Katu Rasa* (spicy) substances
- Frequent consumption of **little amount of food**[17]
- Excess consumption of ***Ruksha* (dry) substances**[18]
- **Frequent fasting**[19]
- Frequent travel in **camel, horse**[20]
- Frequent swimming, playing, jumping
- Too much **physical stress**[21]
- Excess walking in **summer season**[22]
- Excess sexual intercourse in summer season
- Excess suppression of **natural urges**[23]

### Samprapti of Vatarakta

वायुर्विबुद्धो वृद्धेन रक्तेनावारितः पथि।।10।।
कृत्स्नं संदूषयेद्रक्तं तज्ज्ञेयं वातशोणितम्। Ca.Ci. – 29/10-11

- First, there will be vitiation of *Vata Dosha*
- *Rakta Vriddhi* leading to the obstruction in the *Srotas*
- Manifestation of *Vatashonita* due to the simultaneous involvement of vitiated *Vata* and *Rakta*

---

[11] When the person consumes the food substances before the digestion of previously ingested meal is termed as Adhyashana as per Ayurveda fundamentals. When an individual is habituated to such food pattern for longer time, that will lead to the transformation of ingested food into Shuktata or Amlibhavatva or acidification of consumed food. This leads to the vitiation of Pitta Dosha and thus may lead to the affliction of Rakta Dhatu in due course of time.

[12] Krodha or anger is said to be responsible for the vitiation of Pitta Dosha and if a person frequently showing irritability, the person may have severe degree of Pitta Dosha vitiation and thus the person may have affliction of Rakta Dhatu in due course of time.

[13] In this situation, we may have the physiological changes occur in the body similar to the effects occur in case of Adhyashana.
- Macromolecules will not be converted into micromolecules because of poor digestive fire (weak gastric juice, poor conversion of pepsinogen into pepsin and gastric mucosal damage because of infection which occurs as a result of bacterial proliferation on carbohydrate rich diet taken by human beings.
- As gastric damage occurs, macromolecules may move into interstitial compartment of stomach, and later take the course of lymphatic system, as these are macromolecules, which bypass the portal system.
- As these macromolecules are heavier in molecular weight, they move slowly in the intravascular compartment, thus impair the circulatory function.

[14] In this situation, deposited fat in the adipose tissue start to enter into the intravascular compartment, thereby chances of atheroma in the blood vessels are more.

[15] When the individual is exposed to these aetiological factors, there will be energy input will be more than energy expenditure. That means there will accumulation of nutrients, deposition of fat in the adipose tissues of the breast, buttocks, subcutaneous tissues and cheek starts to occur. In the meantime, there will be circulation of lipid content in the intravascular compartment. This may lead to atheromatous changes in the blood vessels. Thus, the person may have symptoms of peripheral arterial disease in due course of time.

[16] As per Ayurveda literatures, excess consumption of Kashaya, Katu and Tikta Rasa substances is said to be responsible for the vitiation of Vata Dosha in the body.

[17] Frequent consumption of little amount of food leads to the increase of Laghu quality in the body. We know that Laghu quality is one of the quality of Vata Dosha. Thus, frequent consumption of little amount of food leads to the vitiation of Vata Dosha.

[18] Excess consumption of Ruksha (dry) substances leads to the increase of Ruksha quality in the body. Ruksha quality is the main quality of Vata Dosha. Thus, based on the concept of Samanya and Vishesha concept, there will be increase of Ruksha quality in the body leading to the increase of Vata Dosha in the body.

[19] Frequent fasting leads to the similar effect which can be seen in case of consumption of little amount of food.

[20] These factors will lead to the increase of Chala quality in the body. if the person is performing these activities in excess, will lead to the increase of Laghu quality too. Thus, there will be the vitiation of Vata Dosha in the body.

[21] Too much physical stress leads to the increase of Vata Dosha in the body. When an individual is undergoing too much physical stress, will lead to the depletion of body nutrients. Initially, there will be depletion of carbohydrates, followed by depletion of fats and proteins. Thus, too much physical stress for longer duration may lead to the emaciation of body and thus we can observe Vata Dosha vitiation in the body.

[22] In exposure to above etiological factors for longer duration, similar effects of exposure to excess physical stress can be observed.

[23] When an individual suppresses the natural urges, will lead to the vitiation of Vata Dosha in the body. Let us take the example of suppression of Purisha (faecal matter), Adhovata (flatus) and Mutra (urine), there will be vitiation of Apana Vata. This will lead to the reverse movement of Apana Vata, leading to the affliction of Samana Vata and later there will be affliction of Prana Vata in due course of time. When there is affliction of Samana Vata, the person may be presented with abnormal functioning of Agni leading to Avipaka (indigestion).

तस्य स्थानं करौ पादावस्यः सर्वसन्धयः।
कृत्वाऽऽदी हस्तपादे तु मूलं देहे विधावति॥12॥
सौक्ष्म्यात् सर्वसरत्वाच्च पवनस्यासुजस्तथा।
तद्रयत्वात् सरत्वाच देहं गच्छ सिराः॥13॥
पर्वखभिहतं क्षुब्धं वक्रत्वादवतिष्ठते।
स्थितं पित्तादिसंसृष्टं तास्ताः सृजति वेदनाः॥14॥
करोति दुःखं तेष्वेव तस्मात् प्रायेण सन्धिषु।
भवन्ति वेदनालाला अत्यर्थे दुःसहा नृणाम्॥15॥ Ca.Ci. – 29/12-15

- The main parts involved in *Vatashonita* are joints all joints of the body, joints of upper and lower limbs in particular.
- First of all, the affliction starts in smaller joints of either upper or lower limbs
- Due to *Sukshmatva* and all pervading nature of *Vata*, *Dravatva* and *Saratva* of *Rakta Dhatu*, the abnormal *Vata* and *Rakta* will move all over the body.
- Stasis of the abnormal *Vata* and *Rakta* occurs in the joints due to the complexity of the structure of the joints.
- Due to the stasis of *Vata* and *Rakta*, there will be various kinds of discomfort ranging from mild to severe forms of discomforts.

## Samprapti Ghataka

- **Dosha :** *Vata*
- **Dushya :** *Rakta*
- **Srotas:** *Raktavaha Srotas*
- **Srotodushti Prakara :** *Sanga* and *Vimargagamana*
- **Agni :** *Jatharagnimandya, Raktadhatvagnimandya*
- **Ama:** *Jatharagnimandyajanya* and *Raktadhatvagnimandyajanya*
- **Udbhava Sthana :** *Pakvashaya*
- **Sanchara Sthana:** *Sarva Sharira*
- **Vyakta Sthana :** *Sandhi*
- **Rogamarga :** *Abhyantara, Bahya* and *Madhyama*
- **Adhishthana :** *Sharirika*
- **Vyadhyavastha :** *Ashukari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*

## Purvarupa of Vatarakta

स्वेदोऽत्यर्थ न वा काय स्पर्शाशत्वं क्षतेऽतिरुक्।
सन्धिशैथिल्यमालस्यं सदनं पिडकोद्गमः॥16॥
जानुजङ्घोरु कट्यं सहस्तपादाङ्गसन्धिषु।
निस्तोदः स्फुरणं भेदो गुरुत्वं सुप्तिरेव च॥17॥
कण्डूः संधिषु ग्भूत्वा भूत्वा नश्यति चासकृत्।
वैवर्ण्य मण्डलोत्पत्तिर्वाताकपूर्वलक्षणम्॥18॥ Ca.Ci. – 29/16-18

- Excess sweating
- No sweating[24]
- Blackish discolouration[25]
- Absence of tactile perception[26]
- Severe pain on trauma to the body[27]
- Looseness of the joints

---

GK

[24] It is being said that Vatarakta is having the vitiation of Vata Dosha and vitiation of Rakta Dhatu simultaneously at a particular point of time. When there is extreme affliction of Rakta Dhatu, poor vitiation of Vata Dosha, the person may have excess sweating. The reason for this statement is there is Ashraya and Ashrayi Bhave with Pitta and Sveda.
- When there is more vitiation of Vata Dosha than affliction of Rakta Dhatu, the person may have absence or negligible amount of sweating.
- As per current mechanism of physiology of sweating, this is occurring as a result of peripheral vaso dilatation. This occurs due to the heat produced during the metabolism of nutrients in the body. During the metabolism, heat is generated. This is one of the mechanism of fever manifestation. The other mechanism of fever causation is prevention of heat loss.
- Heat is generated because of following reasons.
    - Basal rate of metabolism of all cells of the body
    - Extra rate of metabolism caused by muscle activity, including muscle contractions caused by shivering
    - Extra metabolism caused by the effect of thyroxine (and to a lesser extent, other hormones such as growth hormone and testosterone) on the cells
    - Extra metabolism caused by the effect of epinephrine, norepinephrine & sympathetic stimulation on the cells
    - Extra metabolism caused by increased chemical activity in the cells, especially when the cell temperature increases
    - Extra metabolism needed for digestion, absorption, and storage of food
- Heat loss (reduced heat loss from the body) leads to the increased temperature in the body. Two factors determine the rate of transfer of heat to the exterior:
    - How rapidly heat can be conducted from the site where it is produced in the body core to the skin?
    - How rapidly heat then be transferred from the skin to the surroundings?
- In the current situation, the abnormality may be present in muscle or connective tissue etc, there will be extra metabolism in these tissues and this is leading to the increase in heat generation and this may lead to the increased sweating from the body
- When there is hampered heat loss from the body, this means there will be peripheral vaso constriction, this may lead to absent or negligible sweating from the body.

[25] This is considered to be a type of primary skin lesion, i.e. macules.

[26] This is attributable to damage to sensory receptors of the skin, especially the patient will have pathology in the integumentary system in the patient of Vatarakta.

[27] When an individual is having the prodromal symptoms of Vatarakta, if the patient is exposed to trauma to the lower limb, that will release

- Laziness[28]
- Sluggish movement[29] of the body parts
- Appearance of blisters[30] in different parts on the skin
- Pricking type[31] of pain in knee, waist, thighs, joints of upper and lower limbs
- Pulsation[32] in above said body parts
- Tearing type[33] of pain in above said body parts
- Heaviness[34] in above said body parts
- Numbness[35] in above said body parts
- Itching around the affected joints
- Discolouration[36] of the skin, circular elevation in the skin in affected areas

## Sankhya samprapti of Vatarakta

उत्तानमथ गम्भीरं द्विविधं तत् प्रचक्षते।
त्वङ्मांसाश्रयमुत्तानं गम्बीरं त्वन्तराश्रयम्॥19॥ Ca.Ci. – 29/19
तत्र वातेऽधिके वा स्याद्रके पित्ते कफेऽपि वा।
संसृष्टेषु समस्तेषु यच्च तच्छृणु लक्षणम्॥24॥ Ca.Ci. – 29/24

### 3 types depending upon involvement of tissues in the body

1. *Uttana,*
2. *Gambhira* and
3. *Ubhayashrita*

### 8 types depending upon the Dosha involved in the manifestation of the disease,

1. **Single Dosha dominant –** 3 *Vataja, Pittaja, Kaphaja*
2. **Dual Dosha dominant –** 3: *Vatapittaja, Kaphapittaja, Vatakaphaja*
3. **Triple Dosha dominant –** 1: *Sannipataja*
4. **One Rakta dominant –** 1: *Rakta Dhatu* involved in the manifestation

## Uttana Vatarakta

कण्डूदाहरुगायामतोदस्फुरणकुञ्चनैः।
अन्विता श्यावरक्ता त्वग्बाह्ये ताम्रा तथेष्यते॥20॥ Ca.Ci. – 29/20

If the *Dosha*[37] involved in between *Tvak* and *Mamsa,* then we can say that the disease is in the stage of *Uttana Vatarakta*. The *Lakshana* observed during this stage are

- Itching
- Burning sensation
- Pain
- Stretching of the skin
- Pricking type of pain
- Abnormal pulsation

## Gambhira[38] Vatarakta

गम्भीरे श्वयथुः स्तम्धः कठिनोऽन्तर्भृशार्तिमान्।
श्यामस्तानोऽथवा दादतोदस्फुरणपाकवान्॥21॥
रुग्विदाहान्वितोऽभीक्ष्णं वायुः सन्ध्यस्थिमज्जसु।
छिन्दन्निव चरत्यन्तर्वक्रीकुर्वेंध वेगवान्॥22॥
करोति स पङ्गे या शरीरे सर्वतम्धरन्। Ca.Ci. – 29/21-23

If the vitiated *Vata* and *Rakta* are observed in the tissues deeper than *Mamsa,* i.e. *Medas* onwards, then we can infer the *Gambhira* stage of *Vatarakta* in an individual.

- Hard swelling
- Stiffness of the joints
- Severe excruciating pain inside the joints
- Blackish discolouration of the skin

---

GK

the inflammatory markers in the affected part. But, due to the poor functioning of the blood vessels of the lower limb, healing process of the wound may be delayed. This may lead to severe pain as there is delay in healing process.

[28] This is considered as subjective complaint. This can be attributable to sludged blood which can occur in the capillaries, where in transport of proteins, WBCs etc will occur from the capillaries into the interstitial compartment and intracellular compartment.

[29] This is attributable to the sludged blood in the capillaries, where in more movement of fluid with proteins will move from intravascular compartment to interstitial and intracellular compartments. As more amount of proteins are present in the interstitial and intracellular compartments, this will lead to the increase in oncotic pressure in the interstitial compartment, which further leads to the movement of fluid into the interstitial compartment. Thus, there will be heaviness in the body parts where pathological events are happening. This will lead to the sluggish movement of the body parts.

[30] Blisters are the skin lesions having fluid accumulation within or under the epidermis. This has many causes, exact clinical diagnosis must be based on a closed study of physical signs. Morphology and distribution of the bullous eruption helps in accurate diagnosis. E.g. in case of pemphigus, the patient will have flaccid bullous eruptions within epidermis which will lead to painful erosions after rupture of bullae.

[31] Whenever, there is pricking type of pain, it implies that there is a possibility of inflammatory reaction happening inside the body parts where pathological events are happening.

[32] Increased pulsation in above said body parts implies that increased vascularity in above said body parts. In other words, there may be a possibility of development of collaterals in the above said body parts.

[33] Tearing type of pain may imply the underlying process of infective pathology.

[34] Refer the context of sluggish movement of body parts of this chapter.

[35] This is attributable to the destruction of sensory receptors when there is pathological process is happening in the integumentary system.

[36] These are attributable to the worsening of the pathological events in the lower limb secondary to the development of infection or ischemia of the affected part of the body.

[37] In Uttana Vatarakta, the vitiated Dosha will remain in superficially situated Dhatu i.e. Tvak, Rakta and Mamsa.

[38] In this type of Vatarakta, the vitiated Dosha will remain in deep situated Dhatu.

- Coppery discolouration of the skin
- Burning sensation
- Pricking type of pain
- Abnormal pulsation
- Suppuration
- Pain and burning sensation in the bones, joints and bone marrow as cutting type
- *Khanja* – loss of movement of both lower limbs
- *Pangu* – loss of movement of one lower limb

## Ubhayashrita Vatarakta

**सर्वेंधि विज्ञेयं पातासगुभयाश्रयम्।।23।।** Ca.Ci. – 29/23

In this type of *Vatarakta,* both *Lakshana* of *Uttana* and *Gambhira* stages of *Vatarakta* are seen.

## Vataja Vatarakta

**विशेषतः सिरायामशूलेस्फुरणतोदनम्।**
**शोयस्य का क्ष्यं च श्यावतावृद्धिहानयः।।25।।**
**धमन्यङ्गुलिसन्धीनां सङ्कोचोऽङ्गोऽतिरुक्।**
**कुञ्चनस्तम्भने शीतप्रद्वेषश्चानिलेऽधिके।।26।।** Ca.Ci. – 29/25-26

- Dilatation of the vessels
- Pricking type of pain
- Abnormal pulsation
- Needle prick type of pain
- Blackish discolouration of swelling
- Dryness of the skin
- *Dhamani Sankocha* (Vaso constriction)
- *Anguli Sankocha* (constriction of fingers)
- *Sandhi Sankocha* (constriction of joints)
- Stiffness of the body parts
- Severe pain in the joints while movement of the joints
- The patient will have aversion to cold environment

## Raktaja Vataraktа

**श्वयथुर्भृशरुतोदुस्तानधिमिचिमायते।**
**स्निग्धरूक्षैः शमं नैति कण्डूक्लेदान्वितोऽसृजि।।27।।** Ca.Ci. – 29/27

- Swelling is associated with severe pain – pricking type of pain
- Coppery discolouration of the skin
- Tingling sensation of the body parts
- Discomfort manifested will not subside by adopting either *Snehana* or *Rukshana* therapy

## Pittaja Vatarakta

विदाहो वेदना मूर्च्छा वेदस्वष्णा मदो भ्रमः।
रागः पाकध मेदस्य शोपश्धोत्कानि पैत्तिके।।28।। Ca.Ci. – 29/28

- Burning sensation in the affected parts
- Discomfort in joints
- Altered state of consciousness
- Excess sweating
- Thirst
- Intoxicating feeling
- Giddiness
- Redness of the affected parts
- Pus formation in the affected parts
- Tearing type of pain in the affected parts
- Excess dryness of the affected parts

## Kaphaja Vatarakta

**स्तैमित्यं गौरवं स्नेहः सुप्तिर्मन्दा च रुक् कफे।** Ca.Ci. – 29/29

- Abnormal feeling similar to the sensation observed when a person is covering wet cloth over his body
- Heaviness of the body parts
- Unctuousness of the affected parts
- Numbness of the affected parts
- Mild pain of the joints

## Samsrishta and Sannipataja Vatarakta

**हेतुलक्षणसंसर्गाद्विद्याद्वन्द्वत्रिदोषजम्।।29।।** Ca.Ci. – 29/29

3 types of *Samsrishta* types of *Vatarakta* usually show mixed *Lakshana* of *Dosha* vitiation and *Sannipataja* type of *Vatarakta* usually show *Lakshana* of all three *Dosha* vitiation.

## Upadrava of Vatarakta

**अस्वप्नारोचकश्वासमांसकोथशिरोग्रहाः।**
**मूर्च्छाय मदरुत्तृष्णाज्वरमोहप्रवेपकाः।।31।।**
**हिक्कापाङ्गुल्यवीसर्पपाकतोदभ्रमक्लमाः।**
**अङ्गुलीवक्रता स्फोटा दाहमर्मग्रहार्बुदाः।।32।।**
**एतैरुपद्रवैर्वर्ज्यै मोहेनैकेन वाऽपि यत्।**
**संप्रस्त्रावि विवर्णो च स्तब्धमर्बुदकृश्च यत्।।33।।**
**वर्जयेच्चैव संकोचकरमिन्द्रियतापमम्।** Ca.Ci. – 29/31-34

- *Asvapna*[39] (Loss of sleep)
- *Arochaka*[40] (tastelessness)

---

[39] When an individual is presented with chronic inflammation in vessels of lower limb, rest pain is one of the main clinical features of the disease, and it is associated with disturbed sleep or complete loss of sleep.

[40] When an individual is suffering from chronic disease related to cardiovascular system pertaining to lower limb, shift of the blood occurs from different parts of the body including alimentary canal towards lower limb. This mechanism may lead to poor secretion in the alimentary canal including salivary secretion. This in turn leads to the poor mixing of salivary secretion to the bolus of the food, thereby the person may have tastelessness.

- *Shvasa*[41] (breathing discomfort)
- *Mamsakotha*[42] (putrifaction/ necrosis of the tissue)
- *Shirograha*[43] (stiffness of the head region)
- *Murcha* (altered state of consciousness)
- *Mada*[44] (confusion)
- *Ruk*[45] (pain)
- *Trishna*[46] (thirst)
- *Jvara*[47] (raised body temperature)
- *Moha*[48] (stupor or confusion)
- *Pravepaka* (involuntary movements)
- *Hikka*[49] (hiccup)
- *Pangulya*[50] (lameness)
- *Visarpa*[51] (cellulitis)
- *Paka*[52] (suppuration)
- *Toda*[53] (pricking type of pain)
- *Bhrama*[54] (giddiness)
- *Klama*[55] (physical exhaustion without physical exercise)

---

[41] When an individual is suffering from chronic debilitating disease, that may lead to the depletion of body nutrients in the sequential manner of carbohydrate, fat and protein. When this depletion occurs, human body switches over to fat metabolism in the adipose tissue and muscle nutrients in the muscular tissue which lead to formation of ketosis and lactic acidosis respectively. The whole process is termed as metabolic acidosis. Subsequently, the person may develop respiratory alkalosis, one of the clinical feature observed in this occasion is breathing discomfort.

[42] This is attributable to hampered blood supply to the lower limb observed in peripheral arterial disease or thrombo angiitis obliterans. In this situation, the person may have decreased oxygen and nutrient supply leading to necrosis or gangrene formation. It indicates the severity of disease process.

[43] This can be attributable to electrolyte imbalances, hyponatremia in particular. In the context of Mada, Murcha, the causes and clinical features of hyponatremia is described in this chapter.

[44] This can be attributable to the development of electrolyte imbalances, hyponatremia in particular. This is a clinical condition where sodium ions are deficient in the blood which is caused by excess diuretic use, diarrhoea, heart failure and renal disease. Clinically, hyponatremia is identified by headache, confusion and stupor; seizures and coma may occur.

[45] This can be attributable to either intermittent claudication or rest pain or both. This occurs in the individual suffering from peripheral arterial disease due to the accumulation of P substance owing to inadequate blood flow. The site of the pain is depends upon the level of arterial occlusion.

- Rest pain is continuous and aching in nature. This occurs due to ischaemic changes to the somatic nerves. It is considered as cry of the dying nerves. This is usually worse at night, gets aggravated by elevation of the leg above the level of heart and is relieved by hanging the leg below the level of the heart. It usually affects the most distal part first that means the tip of the toe. The painful part becomes very sensitive and any movement or pressure causes an acute exacerbation.

[46] This is attributable to decreased body fluid either in intravascular compartment or in interstitial or in intracellular compartments or in any two or in all three compartments. Refer the context of mechanism of thirst mentioned in Nidana Prakasha written by the author for better understanding of thirst.

[47] This is usually attributable to development of raised body temperature owing to the development of necrosis or gangrene (developing infection in the affected part where blood flow is either stopped or reduced).

- When the person develops cellulitis (bacterial infection of the skin), the person may develop fever.

[48] Refer the context of Mada and Murcha explained in this chapter.

[49] The patient who has irritation of diaphragm will have hiccup. This is caused by sudden involuntary contraction of both the diaphragm and the external intercostal muscles, in association with rapid glottic closure. This usually occur with a frequency of 4 and 60 per minute.

- Though various causes mentioned for the manifestation of hiccup i.e. intrathoracic diseases including mediastinal, diaphragmatic and intra abdominal disease.
- Central causes such as epidemic encephalitis, intracranial diseases, hysteria etc.
- In case of the persons who are suffering from chronic diseases of lower limb may develop uremia. This condition is said to be responsible for manifestation of hiccups.

[50] The person who is suffering from severe peripheral arterial disease, this may lead to the necrosis or gangrenous changes, this may lead to the further management i.e. amputation of the affected limb. Once amputation is done, the person has to have a state of Pangulya (unless he fits the amputated part with artificial limb.

[51] This is attributable to poor blood supply to the lower limb which results in stasis of the blood in the blood vessels. This is responsible for bacterial infection to occur of the subcutaneous tissue of the skin. When this occurs, the person may develop Visarpa.

[52] This is attributable to body's response to the virulence of microorgansims. When neutrophils and macrophages engulf large number of bacteria and necrotic tissue, essentially all neutrophils are going to die. After several days, a cavity is often excavated in the inflamed tissues, that contains varying portions of necrotic tissue, dead neutrophils, dead macrophages and tissue fluid. This mixture is commonly known as pus.

- In the patient suffering from Vatarakta, this pus formation mechanisms in lower limbs, in other words, pathogen might have entered in the lower liimbs.

[53] The term Toda refers to pricking type of pain. When the individual is having inflammatory reaction, one of the symptom in terms of inflammatory response.

[54] This is attributable to hypovolemic shock. This occurs either due to loss of blood cell mass or from loss of plasma volume. This occurs as a result of poor blood supply to brain (syncopal episode).

[55] This is attributable to poor blood supply to the skeletal muscles. When an individual is suffering from peripheral arterial disease in the lower

mised due to the hampered blood supply to the lower limb following physical exercise owing to reduced

- *Anguli Vakrata*[56] (deformities of the fingers)
- *Sphota*[57] (eruptions)
- *Daha*[58] (burning sensation)
- *Marmagraha*[59] (affliction of vital parts)
- *Stabdhatva*[60] (stiffness)
- *Sankocha*[61] (contractures)
- *Indriyatapana*[62](disturbed function of *Indriya*)
- *Vivarna*[63] (discolouration)
- *Samprasravi*[64] (oozing from the affected parts)
- *Arbuda*[65] (hard swelling like malignant tumours)

## Sadhyasadhyata of Vatarakta

एकदोषानुगं साध्यं नवं, याप्यं द्विदोषजम्।
त्रिदोषजमसाध्यं स्याद्यस्य च स्युरुपद्रवाः॥30॥ Ca.Ci. – 29/30

अकृत्स्नोपद्रवं याप्यं साध्यं स्यान्निरुपद्रवम्॥34॥ Ca.Ci. – 29/34

**Differences between Sandhigata Vata, Amavata and Vatarakta**

| Sandhigata Vata | Amavata | Vatarakta |
|---|---|---|
| Vata Dosha is mainly involved | Ama associated with vitiated Dosha is involved | Vitiated Vata along with affliction of Rakta is involved |
| Any joint involvement is seen | Any joint involvement can be seen | Initial affliction of joints of Kara and Pada are seen |
| Snehana (oleation therapy) improve the situation | Snehana worsens the situation | Snehana worsens the situation |
| Agnimandya need not be an essential factor | Agnimandya is an essential factor | Agnimandya is an essential factor |

---

blood supply secondary to peripheral arterial disease of lower limb.

56 This is attributable to deformities developed in the fingers which occurs as a result of poor functions of the joint and fingers. Let us take the example, if an individual is suffering from the pain in the ankle joint, it is obvious that the person will try to avoid the movement of the painful ankle joint.

- The presence of pain in the ankle joint which occurred insidiously implies the undergoing inflammatory pathological process in the ankle joint. This indicates the increased blood supply to the affected ankle joint.
- As the person is having inflammation of the ankle joint, and reduced movement of the ankle joint, the healing will occur as fibrosis of the affected joint.
- When fibrosis of ankle joint occurs, this will be responsible for the altered function of the ankle joint and surrounding joints, leading to the presenting complaints of either limping or pain of the surrounding joints etc. As toes are adjacent to metatarsal joints, which are nearer to ankle joint, the impact of dysfunction of ankle joint may afflict even joints of the toes too.

57 This is attributable to the manifestation of blisters which occur as a result of infection of subcutaneous tissue of the skin of the lower limb. When compared to the different parts of the body, lower limb is most frequently afflicted body part to the soil or contaminated water. These will lead to the exposure of body part to the microbes present in the soil or contaminated water, leading to the formation of blisters in the immunocompromised patient.

58 This can be attributable to infection happening in the lower limb or any part of the body where infection is occurring, this will lead to the increased blood supply and thereby there will be interaction between neutrophils and macrophages with microorganisms leading to the formation of pus. Thus, the person may present with burning sensation of the affected part.

59 When an individual is suffering from peripheral arterial disease, it implies that poor blood supply to the affected lower limb.

- This will lead to appearance of gangrenous changes if the pathology becomes severe in nature.
- When the complete occlusion of the artery of the lower limb occurs, that will lead to the gangrene which may spread towards either ankle or knee joint.
- When the area of ankle or knee joint is afflicted, that will lead to delayed healing of the gangrenous change, as the movement of the joint may delay the healing process. This may lead to even further compromise in the function of the joint.

60 The term Stabdhata refers to stiffness of muscles. When stiffness starts to appear, that will lead to reduced function of the painful part. When this event occurs, further this will lead to the poor blood circulation owing the stasis of the blood in the capillaries of the affected part. Thus, the person may have reduced function of the affected organ and later affected part of the body. Stiffness may be observed if the affected part is either skeletal or smooth muscles.

61 This can be attributable to the development of contractures which may occur as a result of healing of wound by fibrosis.

62 Vatarakta is a disease afflicting the upper and lower limbs. The person may develop the pain in the lower limb which may worsen after walking for a shorter period of time (intermittent claudication), in severe case, the person may develop rest pain. Whereas in the upper limb, the person may have bluish discolouration, particularly during cold environment which is associated with severe pain too.

63 This can be attributable to discolouration (reddish in initial stage implying inflammation or blackish in case of development of necrosis or gangrene). The former clinical presentation implies the entry of foreign body to the skin or trauma to the body. The latter clinical presentation may imply sudden blockage of blood to the lower limb such as blockage at dorsalis pedis artery or popliteal artery or femoral artery etc. depending upon the clinical presentation, the person may have discolouration will be observed in the patient.

64 When an individual is suffering from peripheral arterial disease, the person may develop venous ulcers or stasis ulcers. During this stage, the person may have secretions to increase from the site of ulcer to heal the ulcer.

65 When the pathological process of Vatarakta is commencing, then more amount of fluid, formed elements, nutrients, proteins move from capillary to interstitial compartment causing sludged blood (slow movement of blood at the venous end of capillary owing to movement of water, nutrients from the capillary to interstitial space). When the pathological process continues in the same tissue, this will lead to enhanced movement of fluid, formed elements, nutrients, proteins from other adjacent capillaries, thus increasing the area of sludged blood. This will lead to increased viscosity of the surrounding tissue, thus leading to the formation of hard swelling.

- The *Vatarakta* manifested due to vitiation of single *Dosha*, of recent origin is considered to be *Sadhya* (easily curable)
- *Vatarakta* manifested due to the vitiation of two *Dosha* is considered to be *Yapya* (manageable)
- *Vatarakta* manifested due to the vitiation of all three *Dosha*, associated with *Upadrava* (complications) is considered to be *Asadhya* (incurable).
- If *Vatarakta* associated with *Upadrava* is considered to be *Yapya* (manageable) and without *Upadrava* is considered to be *Sadhya* (easily curable)

## Key summary of the chapter

वातरक्ताभ्यां जनितो व्याधिः वातरचं

Chakra, Ca.Ci. – 29/2

- Vatarakta is the disease which manifests in the individual due to vitiation of Vata Dosha along with affliction of Rakta Dhatu. It is also known as Vatashonita, Vatasrik, Khuda, Vatabalasa and Adhyavata.
- When the individual indulges in the exposure to aetiological factors which leads to the vitiation of Vata and affliction of Rakta, the people are Sukumara (delicate people), then such individuals are more prone to suffer from Vatarakta.
- This disease usually start from either Pada (foot) or Kara (hands), then the disease shows diffuse symptoms.
- As far as the types of Vatarakta are considered, 2 types are mentioned based on the Dhatu afflicted: Uttana (involving Tvak, Rakta and Mamsa) and Gambhira (deep seated Dhatu afflicted); 8 types depending upon Dosha vitiation: 3 single Dosha vitiation manifested; 3 Dual Dosha involvement and 1 Sannipataja (triple Dosha involvement and 1 Raktaja (vitiation of Rakta is observed) in the disease process.
- As far as Sadhyasadhyata of the disease is concerned, the Vatarakta manifested due to vitiation of single Dosha, of recent origin is considered to be Sadhya (easily curable); Vatarakta manifested due to the vitiation of two Dosha is considered to be Yapya (manageable); Vatarakta manifested due to the vitiation of all three Dosha, associated with Upadrava (complications) is considered to be Asadhya (incurable); if Vatarakta associated with Upadrava is considered to be Yapya (manageable) and without Upadrava is considered to be Sadhya (easily curable)

## Self-Assessment: Questions for Review

### Long essay questions

- Define Vatarakta, explain Nidana, Samprapti, Bheda, Sadhyasadhyata of Vatarakta
- Explain Nidana, Purvarupa, Rupa, Bheda, Upadrava and Sadhyasadhyata of Vatarakta

### Short essay questions

- Describe Gambhira Vatarakta
- Explain Vidhi Samprapti of Vatarakta

### MCQs

1. **Which of the following is not the synonym of Vataraktа?**

   a. Vatashonita; b. Khuda;
   c. Adhyavata; d. Varchogada

   *Answer:* (d)

2. **The pathogenesis starts in which part of the body in case of Vatarakta?**

   a. Pada; b. Prishtha;
   c. Lalata; d. Griva

   *Answer:* (a)

3. **Akhuvisha is the term associated with which of the following disease?**

   a. Amavata; b. Vatashonita;
   c. Amlapitta; d. Kushtha

   *Answer:* (b)

4. **Uttana and Gambhira are the varieties of**

   a. Amavata; b. Vatarakta;
   c. Jvara; d. Raktapitta

   *Answer:* (b)

5. **Sukumara (delicate) people are prone to suffer from**

   a. Gridhrasi; b. Vishvachi;
   c. Pakshaghata; d. Vatarakta

   *Answer:* (d)

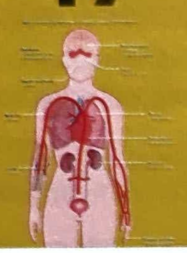
## Chapter resources

- Charaka Samhita, Chikitsa Sthana 29th chapter: Vatashonita Chikitsa Adhyaya
- Ashtanga Hridaya Nidana Sthana 16th chapter: Vatashonita Nidana Adhyaya
- Ashtanga Sangraha Nidana Sthana 16th chapter: Vatashonita Nidana Adhyaya
- Madhava Nidana, 25th chapter: Amavata Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- https://www.healthline.com/health/systemic-lupus-erythematosus#gallery-open

***

CHAPTER

47



# Immunological and Metabolic Disorders

## Learning Objectives

- ⇨ To know about the clinical features of rheumatic fever, rheumatoid arthritis, systemic lupus erythematosus (SLE), ankylosing spondylitis, gout
- ⇨ To know about the relevant physical examinations of the patients of above said diseases
- ⇨ To know about the order and interpretation of laboratory investigations related to above said diseases
- ⇨ To know about the differential diagnosis of arthritis

## Introduction

Rheumatic fever is a non suppurative, acute inflammatory complication of group A streptococcal infection, causing combinations of arthritis, carditis, subcutaneous nodules, erythema marginatum and chorea. Chronic rheumatic fever involves all layers of the heart causing major cardiac sequelae referred to as rheumatic heart disease. In spite of its name suggesting an acute arthritis migrating from joint to joint, it is now well known that it is the heart rather than the joints which is first affected. William Boyd years ago, gave the dictum 'rheumatism licks the joint, but bites the whole heart'. Diagnosis is based on Jones criteria to information obtained from history, physical examination and laboratory tests.

- A first episode of acute rheumatic fever can occur at any age, but occurs most often between 5 years and 15 years and is usually uncommon below 3 years and above 21 years.
- Group A Streptococcal infection (GAS) is the etiological precursor of ARF, but host and environmental factors are important. GAS M proteins share epitopes with proteins found in synovium, heart muscles and heart valve, indicates the probable damage of synovial joints, heart muscle and heart valve. Other factors such as overcrowding, undernutrition, lower socioeconomical status predispose the occurrence of rheumatic fever.
- The incidence of the disease is more common in regions such as cold climate, damp weather, places near the rivers and water ways which favours the spread of infection.

## Pathology

- Initially, the person afflicted with rheumatic fever will have sore throat and upper respiratory tract. After the 2 – 3 weeks of exposure to the microorganism, the person will have cardiac manifestation.
- Subsequent episodes of rheumatic fever will worsen the clinical condition of the patient.
- Higher incidence of infection is seen after outbreaks of the infection.
- There will be increased levels of antibodies to the antigen of Group A streptococcal infection such as antistreptolysin O (ASLO) in the body.

## Clinical features

- The first episode of acute rheumatic fever generally appears 2 to 3 weeks after streptococcal pharyngitis in the children between 5 to 15 years. With subsequent streptococcal pharyngitis, there is reactivation of the disease and similar clinical manifestations appear with each recurrent attack.
- The disease generally presents with migratory polyarthritis and fever.

## Consequences

The disease may have the following consequences.

- **Carditis** – This is the consequence seen in the person who has developed streptococcal pharyngitis.
- **Polyarthritis** – Acute and painful inflammation of the synovial membranes of some of the joints, larger

joints in particular, seen in 90% of the adults. As pain and swelling subside in one joint, other joints tend to get involved, producing the characteristic 'migratory polyarthritis' involving two or more joints at a time.

- **Chorea (Sydenham's chorea)–** Chorea minor or St Vitus dance is a delayed manifestation of rheumatic fever as a result of involvement of central nervous system. The condition is characterised by disordered and involuntary jerky movements of the trunk and the extremities accompanied by some degree of emotional instability.
- **Erythema marginatum–** This non-pruritic erythematous rash is characteristic of RF. The lesions occur mainly on the trunk and proximal parts of the extremities. The erythematous area develops central clearing and has slightly elevated red margins. The erythema is transient and migratory.
- **Subcutaneous nodules:** The subcutaneous nodules occur more often in children than in adults. These nodules are small (0.5 – 2.0 cm in diameter), spherical or ovoid and painless. They are attached to deeper structures like tendons, ligaments, fascia or periosteum and therefore often remain unnoticed by the patients. These are observed in extensor surfaces of the wrists, elbows, knees and ankles.
- This is associated with fever, arthralgia, laboratory findings of elevated ESR, raised CRP and leucocytosis.

## Complications of rheumatic fever

Death may occur because of cardiac failure, bacterial endocarditis and embolism.

- **Cardiac failure:** This is the most common cause of death from rheumatic heart disease. In young patients, cardiac failure occurs due to the chronic valvular deformities, while in older patients, coronary artery disease may be the cause of the cardiac failure.
- **Bacterial endocarditis:** The acute and subacute type may supervene due to inadequate use of antibiotics.
- **Embolism:** Embolism usually arises from left atrium and its appendages, in association with mitral stenosis. The organs most commonly affected are brain, kidneys, spleen and lungs.
- **Sudden death:** This may occur as a result of ball thrombus in the left atrium or due to acute coronary insufficiency in association with aortic stenosis.

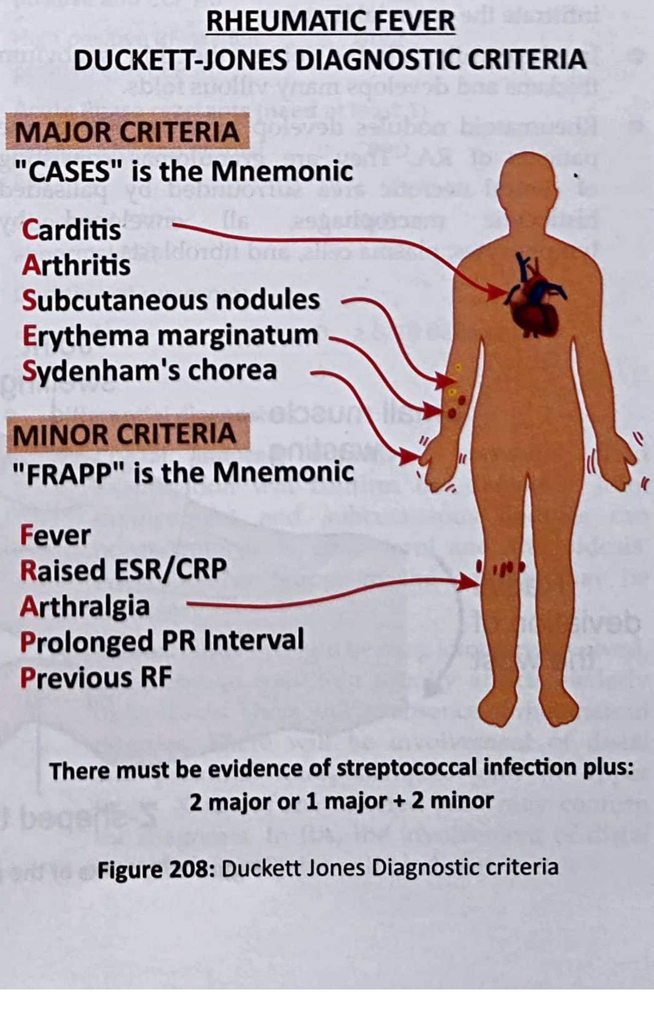
## Diagnosis of rheumatic fever

Revised Jones criteria for the diagnosis of rheumatic fever (RF):

- **Major criteria**
  - Carditis
  - Polyarthritis
  - Chorea (Sydenham's chorea)
  - Erythema marginatum
  - Subcutaneous nodules
- **Minor criteria:**
  - Fever
  - Arthralgia
  - Previous history of RF
  - Laboratory findings of elevated ESR, raised CRP, leucocytosis

## Prognosis of rheumatic fever

- Prognosis depends mostly on the severity of the initial carditis. Patients with severe carditis during the first episode may have residual heart disease that is often worsened by recurrent episodes of RF.
- Murmurs eventually disappear in about half of the patients whose acute episodes were manifested by mild carditis without major cardiac enlargement or decompensation.
- Patients who did not have carditis are less likely to have recurrences and unlikely to develop carditis if acute RF recurs.
- Sydenham's chorea usually lasts several months and resolves completely in most patients, but about 1/3rd of patients have recurrences. All other manifestations will subside without residual effects.



**RHEUMATIC FEVER**

**DUCKETT-JONES DIAGNOSTIC CRITERIA**

**MAJOR CRITERIA**

**"CASES" is the Mnemonic**

**Carditis**
**Arthritis**
**Subcutaneous nodules**
**Erythema marginatum**
**Sydenham's chorea**

**MINOR CRITERIA**

**"FRAPP" is the Mnemonic**

**Fever**
**Raised ESR/CRP**
**Arthralgia**
**Prolonged PR Interval**
**Previous RF**

**There must be evidence of streptococcal infection plus: 2 major or 1 major + 2 minor**

**Figure 208:** Duckett Jones Diagnostic criteria

Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease which primarily involves joints. This is characterised by multiple joint involvement, symmetric joint involvement and smaller joint involvement leading to progressive destruction of articular structures associated with systemic symptoms. Diagnosis is based on specific clinical features, laboratory investigations and imaging studies.

### Facts of the disease prevalence

- Affects 1% of the population
- Women are more prone to the diseases 2 to 3 times than men
- Onset may be at any age; most often between 35 to 50 years of age group

**Etiology:** though the disease is autoimmune, the precise cause is unknown, many factors may contribute.

### Pathophysiology

- Immune complexes produced by synovial lining cells and these are responsible for the immunologic abnormalities in inflamed blood vessels.
- Plasma cells produce antibodies (rheumatoid factor) that contribute to these immune complexes.
- Macrophages migrate to diseased synovium in early disease and in chronic disease process, lymphocytes infiltrate the synovial tissue.
- In chronically affected joints, the thin synovium thickens and develops many villous folds.
- Rheumatoid nodules develop in about 30% of the patients of RA. They are granulomas consisting of central necrotic area surrounded by palisaded histiocytic macrophages, all enveloped by lymphocytes, plasma cells, and fibroblasts.

### Clinical features

- Onset is usually incidious, often beginning with systemic and joint symptoms. systemic symptoms include early morning stiffness of affected joints, generalised afternoon fatigue and malaise, anorexia, generalised weakness and occasionally low grade fever. The joint symptoms include joint pain, joint swelling, stiffness and deformities.
- The disease progresses most rapidly during first 6 years, particularly in the 1st year. 80% of the patients develop some permanent joint deformities within 10 years.
- Thus, the course is unpredictable in different diseased individuals.
- Joint symptoms are characteristically symmetric. Joint stiffness lasts > 60 minutes after rising in the morning, but may also be seen after prolonged immobility. Involved joints are tender, with erythema, swollen and restricted movements.
  - Wrists, index and middle metacarpophalangeal joints are usual afflicted joints
  - Other joints involved in the disease are proximal interphalangeal joints, metatarsophalangeal joints, shoulders, elbows, hips, knees and ankle joints.
  - Swan neck deformity (hyperextension of the proximal interphalangeal joint and flexion of the distal interphalangeal joint), boutonniere deformity (flexion of the proximal interphalangeal joint and hyperextension of the distal interphalangeal joint), z deformity of the thumb, ulnar deviation of the fingers, Baker's cyst in the posterior aspect of the knee joint are the other frequent sequelae seen during the course of the illness.
  - Subcutaneous rheumatoid nodules are seen in 30% of the patients.

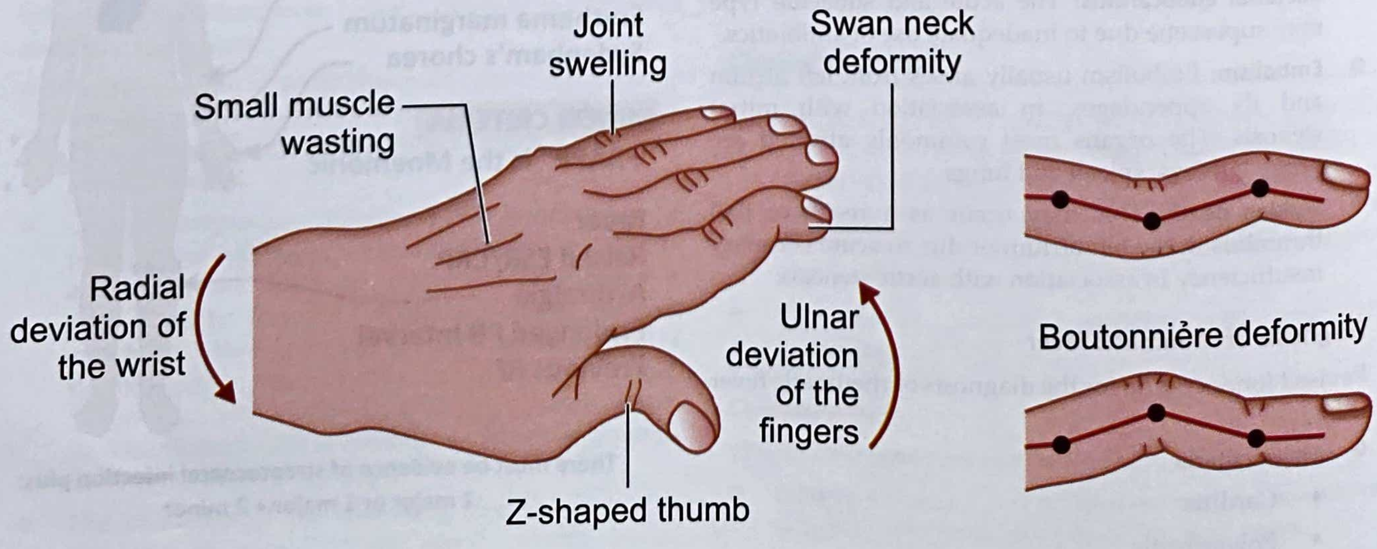


**Figure 209:** Joints of the patient of rheumatoid arthritis

Image of swan neck and boutonniere deformity: In swan neck deformity, there will be flexion of distal interphalangeal joint and hyperextension of proximal interphalangeal joint. Whereas in bouonnaire deformity, there will be flexion of proximal interphalangeal joint and hyperextension of distal interphalangeal joint.

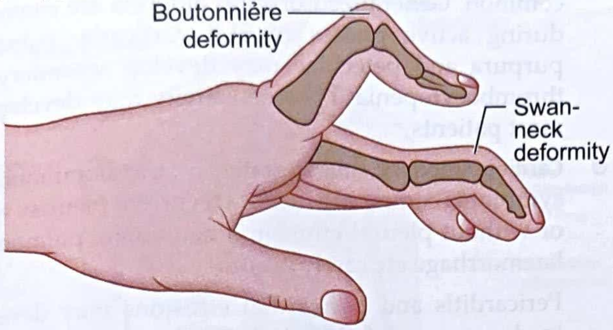


**Figure 210:** Other images of deformities of rheumatoid arthritis

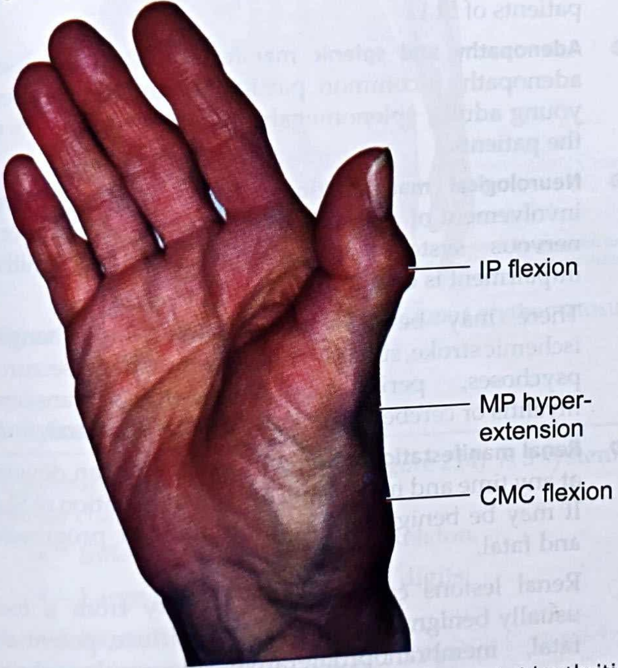


**Figure 211:** Z deformity in the patient of rheumatoid arthritis:

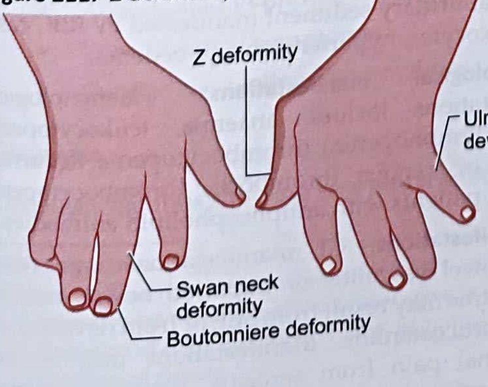


**Figure 212:** The abnormalities of joints of rheumatoid arthritis

In this image, we can observe ulnar deviation of the fingers and subluxation of metacarpophalangeal joints.

- This is seen in thumb of the patient of rheumatoid arthritis.
- Diagnosis of the disease is by
  - Clinical criteria for the diagnosis of RA:
  - Serum rheumatoid factor (RA test) and anticyclic citrullinated peptide antibody (anti CCP)
  - X rays

| **2020 ACR-EULAR Classification- Rheumatoid Arthritis** | | |
|---|---|---|
| **Joint Involvement** | | |
| 1 large joint | 0 | For patients with at least 1 joint with definite clinical synovitis, not better explained by another disease |
| 2-10 large joints | 1 | |
| 1-3 small joints, +/- large joints | 3 | |
| >10 joints (at least 1 small joint) | 5 | |
| **Serology (need at least 1)** | | **Rule out:** |
| Negative RF, negative anti CCP Ab | 0 | Psoriatic arthritis |
| Low positive RF or low positive anti CCP Ab | 2 | Viral polyarthritis |
| High positive RF or high positive anti CCP Ab | 3 | Gout |
| **Acute Phase reactants (need at least 1)** | | |
| Normal CRP and normal ESR | 0 | CPPD |
| Abnormal CRP or abnormal ESR | 1 | SLE |
| **Duration of symptoms** | | |
| < 6 weeks | 0 | ≥ 6/10 definite RA |
| ≥ 6 weeks | 1 | |

- **Differential diagnosis:**
  - **Crystal induced arthritis** – synovial fluid examination will confirm the diagnosis. Joint involvement and subcutaneous nodules can occur from gout, cholesterol and amyloidosis. Aspiration or biopsy of the nodules may be necessary.
  - **Osteoarthritis** – weight bearing joints are involved, degenerative condition usually afflicts elederly individuals. There will be absence of rheumatoid nodules. There will be involvement of distal and proximal interphalangeal joint in upper limbs. X ray of the affected joint may confirm the diagnosis. In RA, the involvement of distal interphalangeal joint will be absent.

  - **SLE** – can be distinguished if there are skin lesions on light exposed areas, hair loss, oral and nasal mucosal lesions, absence of joint erosions in even long standing arthritis. The deformities in this disease are usually reducible as joint erosions are absent during the course of the disease.
  - **Sarcoidosis** – though this disease involves the joints, the tissue biopsy is needed for the confirmation of the disease
  - **Reactive arthritis** – can be differentiated by antecedent gastro intestinal or genito urinary symptoms; asymmetric involvement of joints, pain in Achilles tendon, sacroiliac joints, large joints are involved.
  - **Psoriatic arthritis** – there will be asymmetric involvement of the joints. The differentiation is difficult if there is absence of nail or skin lesions.
  - **Ankylosing spondylitis** – may be differentiated by spinal and axial joint involvement; absence of rheumatoid nodules and negative RA factor test.
- **Prognosis:**
  - RA decreases life expectancy by 3 to 7 years with heart disease, infection and GI bleeding
  - At least 10% of the patients eventually disabled despite vigorous management of the disease

## Systemic Lupus Erythematosus

Systemic lupus erythematosus **(see Figure 213)** (SLE) is a chronic, multisystem, inflammatory disorder of autoimmune aetiology, occurring predominantly in young women. Common manifestations may include arthralgias and arthritis; malar and other skin rashes; pleuritis and pericarditis; renal or CNS involvement; haematologic cytopenias. Diagnosis is done by clinical evaluation and serological evaluation.

- 70-90% of the cases are seen in women of child bearing age group. It can affect at any age, including neonates.
- Clinical findings may vary. SLE develops abruptly with fever or insidiously over months or years with episodes of arthralgia and malaise.

  Vascular headaches, epilepsy or psychoses may be initial findings. Manifestations are referable to any organ system may appear.
- **Joint manifestations:** Joint symptoms, ranging from intermittent arthralgias to acute polyarthritis, occur in about 90% of the patients and may precede other manifestations by years.

  Most lupus polyarthritis is nondestructive and nondeforming. However, in long standing disease, deformities without bone erosions may develop.
- **Skin and mucous membrane manifestations:** Skin lesions include malar butterfly erythema (flat or raised) that generally spares the nasolabial folds. The absence of papules and pustules helps in distinguishing from rosacea with SLE. Recurrent ulcers on mucous membranes of hard and soft palate, buccal mucosa, mucosa of gums and anterior nasal septum are common. Generalized or focal alopecia are common during active phases of SLE. Urticaria, palpable purpura and petechiae may develop secondary to thrombocytopenia. Photosensitivity may develop in most patients.
- **Cardiopulmonary manifestations:** Cardiopulmonary symptoms commonly include recurrent pleurisy with or without pleural effusion. Pneumonia, pulmonary haemorrhage etc rarely occur.

  Pericarditis and pericardial effusions may develop in due course of time. Atherosclerosis in the main vessels is one of the complication observed in the patients of SLE.
- **Adenopathy and splenic manifestations:** Generalised adenopathy is common, particularly among children, young adults, splenomegaly may develop in 10% of the patients.
- **Neurological manifestations:** This can occur from involvement of any part of the central or peripheral nervous system or meninges. Mild cognitive impairment is common.

  There may be headaches, personality changes, ischemic stroke, subarachnoid haemorrhage, seizures, psychoses, peripheral neuropathy, transverse myelitis or cerebellar dysfunction are common.
- **Renal manifestations:** Renal involvement can develop at any time and may be the only manifestation of SLE. It may be benign and asymptomatic or progressive and fatal.

  Renal lesions can range in severity from a focal usually benign, glomerulitis to a diffuse, potentially fatal, membranoproliferative glomerulonephritis. Common manifestations include proteinuria, an abnormal urinary sediment manifested by RBC casts and leukocytes, hypertension and oedema.
- **Haematological manifestations:** Haematological manifestations include anaemia, leukocytopenia (usually lymphopenia); thrombocytopenia. Recurrent arterial or venous thrombosis, thrombocytopenia occur in patients with antiphospholipid antibodies.
- **GI manifestations:** GI manifestations can result from bowel vasculitis or impaired bowel motility. Pancreatitis may result from SLE or from its treatment with corticosteroids. Manifestations may include abdominal pain from serositis, nausea, vomiting, bowel perforation and pseudo obstruction.
- **Diagnosis** is done by clinical criteria; cytopenias, autoantibodies.

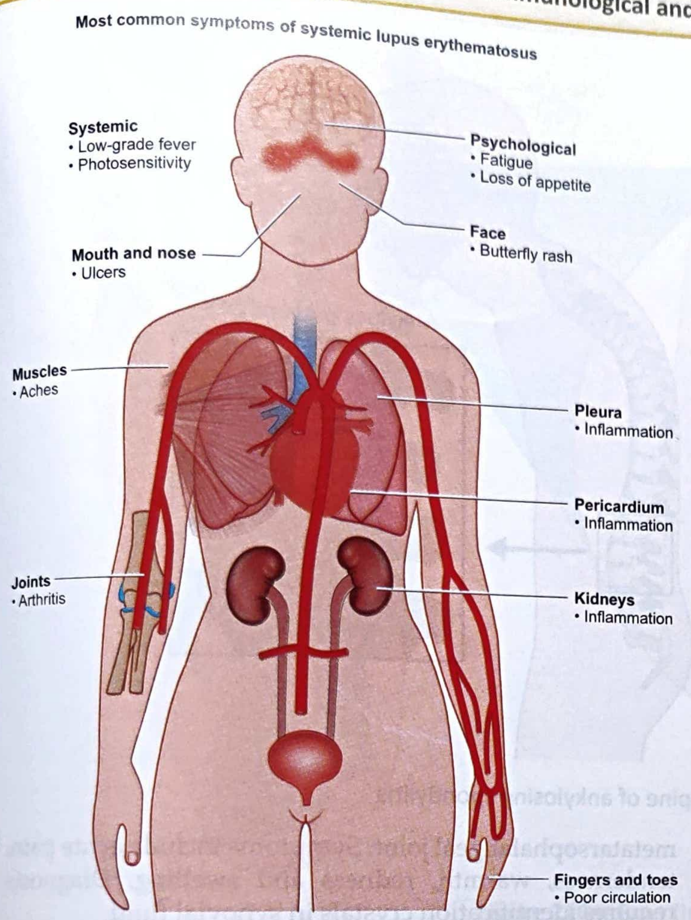


**Figure 213:** Clinical features of systemic lupus erythematosus (SLE)

## Ankylosing Spondylitis

Ankylosing spondylitis (AS) **(see Figure 214)** is a systemic disease characterized by

- Inflammation of the axial skeleton,
- Large peripheral joints and digits;
- Nocturnal back pain;
- Back stiffness;
- Accentuated kyphosis;
- Constitutional symptoms;
- Cardiac conduction abnormalities.

### Diagnosis

Diagnosis requires showing sacroiliitis on X-ray.

- This disease is seen 3 times more in males.

It has no known specific cause.

People who have a gene called HLA-B27 are at increasing risk of developing this disease.

- The most frequent manifestation is back pain, but disease can begin in peripheral joints; especially in children and women.

Other early symptoms are diminished chest expansion from diffuse costovertebral involvement; low grade fever, fatigue, anorexia, weight loss and anaemia.

- Back pain, often nocturnal and of varying intensity, eventually becomes more recurrent.

Morning stiffness, typically relieved by activity and paraspinal muscle spasm may develop.

A flexed, bent over posture eases back pain and paraspinal muscle spasm, thus kyphosis is common in untreated patients.

Severe hip arthritis can develop.

In late stages, the patient has accentuated kyphosis, loss of lumbar lordosis; and flexed bent forward posturing, with compromised pulmonary functions.

- Systemic manifestations may manifest in 1/3rd of the patients.

Recurrent, acute anterior uveitis is common, but self limited.

Neurological signs result from compression radiculitis or sciatica, vertebral fracture or subluxation, or cauda equina syndrome.

Cardiovascular manifestations can include aortic insufficiency, aortitis, angina, pericarditis and conduction disturbances.

Dysponea, cough or haemoptysis can result from nontuberculous fibrosis or cavitation of upper lobe of the lung.

- Diagnosis is done by spine imaging **(see Figure 215)** (bamboo spine).

Blood tests (ESR, C reactive protein, CBC) or modified New York criteria[1] may help in the diagnosis.

As far as prognosis is concerned, this is characterized by mild or moderate flares of active inflammation alternating with periods of little or no inflammation.

---

[1] Clinical criteria
Low back pain and stiffness which improves with activity for more than three months
Limited range of motion of the lumbar spine in both forward and lateral bending.
Limitation of chest expansion relative to normal values correlated for age and sex
Radiological criteria
Sacroilitis grade 2 bilaterally
Sacroilitis grade 3 to 4 unilaterally
Note: Dugnosis of AS is made if the patient fulfil at least one radiological and one clinical criteria. Source: Copyright © 1994 American Collegs of Rheumatology, an der Linden S. Valkenburg HA, Can A. Evaluation of diagnostic criteria for ankylosing spondyles. A proposal for modification of the New York criteria. Ashes ben 1984.27(4)361-368

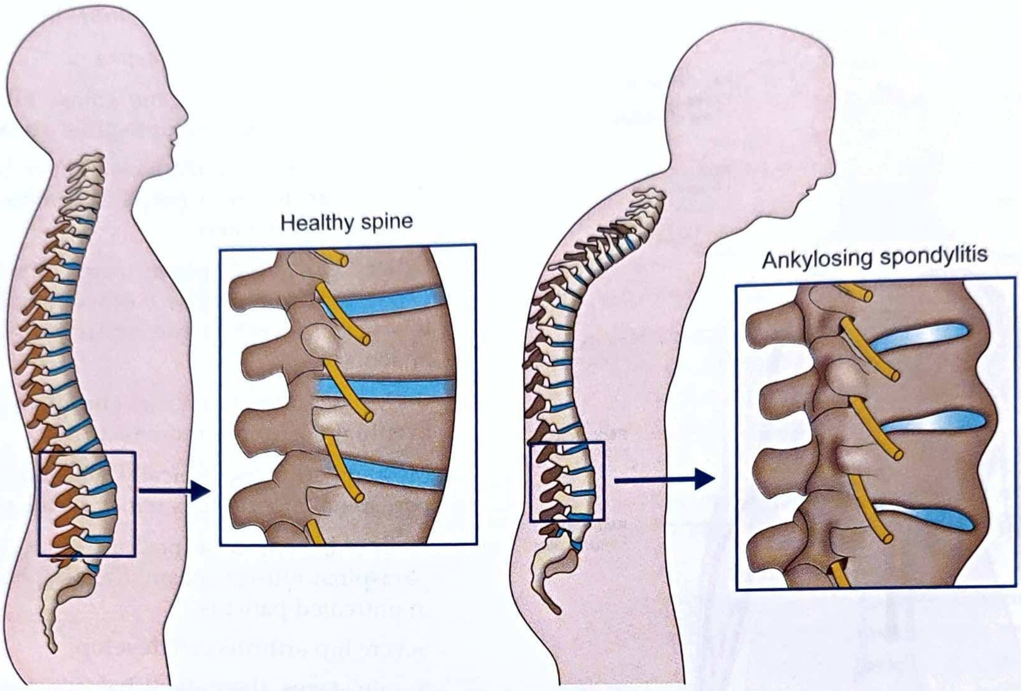


**Figure 214:** Normal spine and spine of ankylosing spondylitis

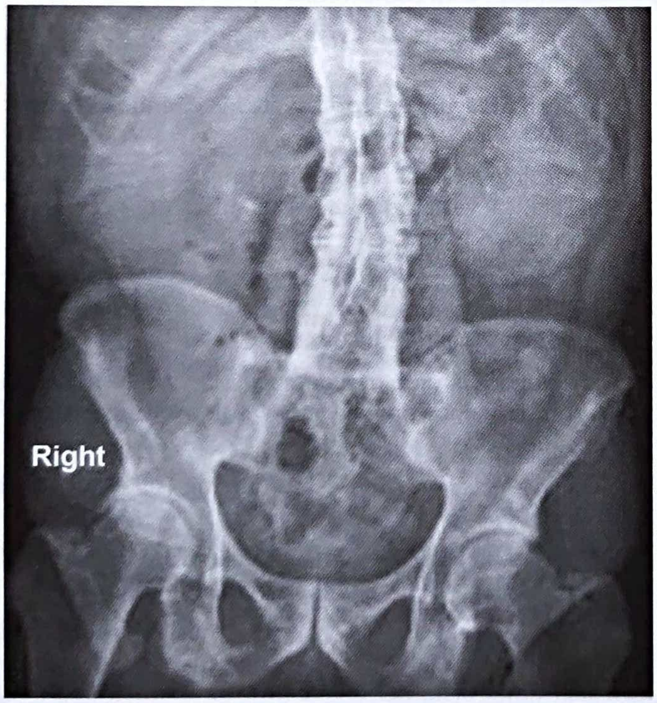


**Figure 215:** X ray spine of ankylosing spondylitis showing bamboo spine

## Gout

Gout **(see Figure 216a)** is a clinical condition where precipitation of monosodium urate crystals in the tissue can be observed usually in and around the joints. This is causing recurrent acute or chronic arthritis. Acute arthritis is initially monoarticular and often involves the 1st metatarsophalangeal joint. Symptoms include acute pain, tenderness, warmth, redness and swelling. Diagnosis requires identification crystals in synovial fluid.

### Aetiology and pathology

- Decreased renal excretion of urate crystals: The most common cause of hyperuricemia in the body. It may be seen in patients with receiving diuretics and in those with diseases that decrease GFR (glomerular filtration rate). Lead poisoning irreversibly damage renal tubules, leading to urate retention.
- Increased production of urate crystals, in case of increased nucleoprotein turnover in case of haematological conditions such as lymphoma or leukemia or haemolytic anaemia) and in conditions where increased rates of cellular proliferation and cell death occurs such as psoriasis or cytotoxic cancer therapy or radiation therapy)
- Increased intake of purine rich food substances such as alcoholic beverages, sweetened beverages, sea foods, organ meat such as liver etc

### Signs and symptoms

- Acute gouty arthritis usually begins with sudden onset of pain (often nocturnal). The metatarsophalangeal joint of great toe in most often involved. Rarely, hip, shoulder, sacroiliac sternoclavicular or cervical spine are involved. Pain becomes progressively more severe, usually over a few hours, and is often excruciating. Swelling, warmth, redness and tenderness may be present.

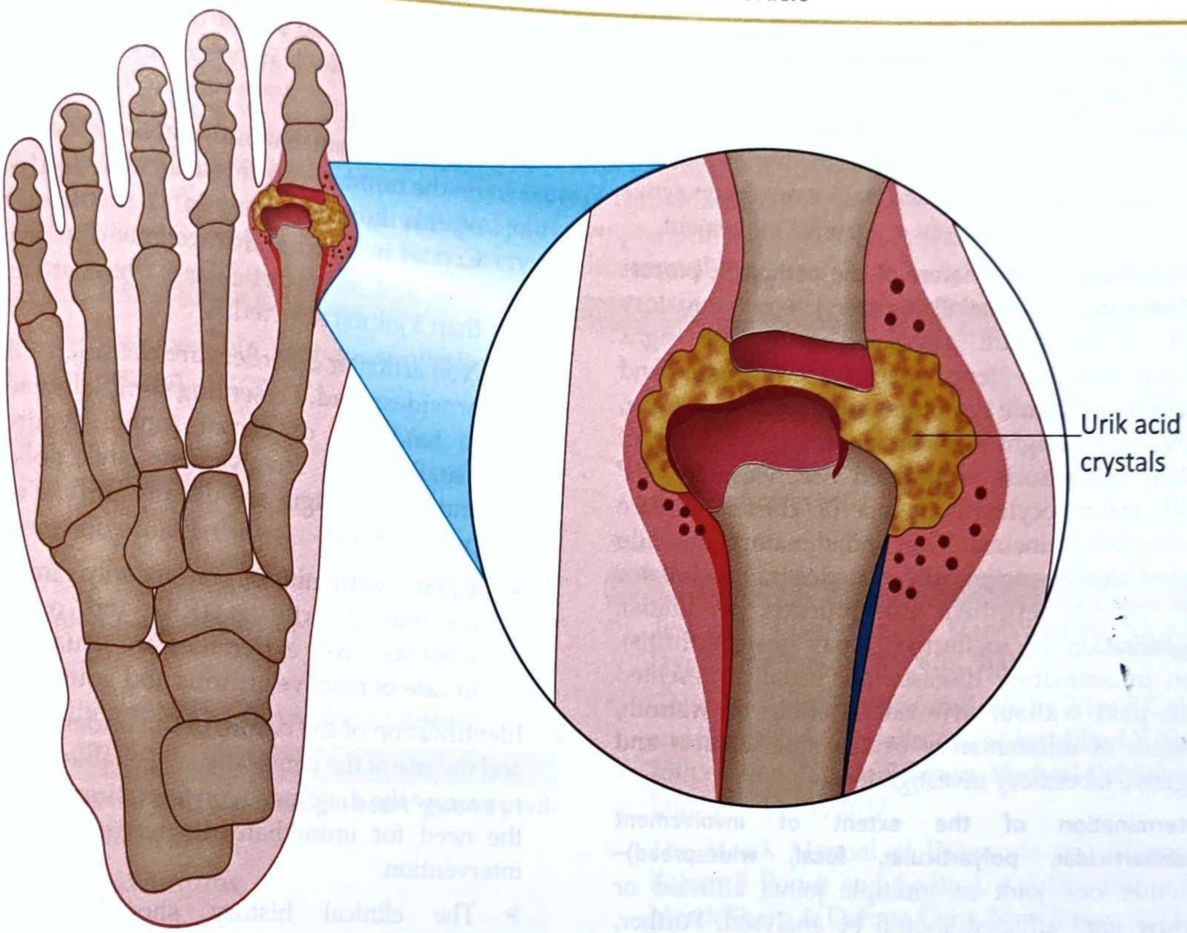


**Figure 216a:** Gout (Inflammatory Arthritis)

- The first few attacks usually affect single joint and last only a few days. Later attacks may affect several joints simultaneously and persist upto 3 weeks if untreated. Subsequent attacks develop after progressively shorter symptom free intervals. Eventually several attacks may occur each year.

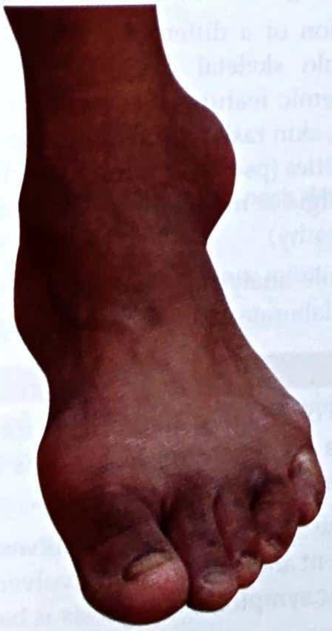


**Figure 216b:** Clinical feature of gout

- **Tophi: (see Figure 216b)** Tophi develop most often in patients with chronic gout, but they can never occur in the patients of acute gout. They are usually firm, yellow or white papules or nodules either single or multiple. They can occur in various locations, commonly the fingers, hands, feet, around olecranon and around Achilles tendon. Tophi may cause deformities.
- **Chronic gout:** Pain, deformity and limited joint movement can be observed. Inflammation can be flaring in some joints while subsiding in others. About 20% of the patients may have urolithiasis.
- Cardiovascular disease and metabolic syndrome are common in the patients of gout.
- Diagnosis is done by clinical criteria and synovial fluid analysis. Serum urate level is being checked to evaluate elevated levels of urate in the blood. As far as prognosis is concerned, the disease is more severe if the early symptoms are observed in the patients in their 2nd and 3rd decade of life. Metabolic syndrome and cardiovascular disease can increase the mortality in patients with gout.

### Differential diagnosis of arthritis:

- **Anatomic localization of complaint (articular vs. nonarticular)** – first of all, anatomical localisation of the joint should be analysed. Articular involvement should be considered when the person is presented with pain in the joint (joint surfaces) associated with joint swelling and worsening of the pain on active as well as passive movement of the joint. In case of non articular (ligament, tendon or bursa) involvement, the person will be having pain in the region situated far from the joint surface and pain worsens on active movement and usually not on passive movement.

- **Determination of the nature of the pathologic process (inflammatory vs. noninflammatory) –** inflammatory joint swellings are associated with any signs of inflammation (erythema, warmth, pain and swelling), systemic symptoms such as fatigue, fever, rashes and weight loss) or laboratory evidence of inflammation such as elevated ESR, elevated CRP level, thrombocytosis, anemia of chronic disease or hypoalbuminemia. Non inflammatory musculo skeletal diseases are usually related to trauma (rotator cuff injury), repetitive use (bursitis, tendinitis), degeneration or ineffective repair (osteoarthritis). Non inflammatory diseases are usually presented with pain without synovial swelling or warmth, absence of inflammatory or systemic features and negative laboratory investigations.
- **Determination of the extent of involvement (monoarticular, polyarticular, focal, widespread)–** whether one joint or multiple joints afflicted or diffuse joint afflicted should be analysed. Further, symmetrical or asymmetrical joint afflicted should be evaluated. For example, when one individual is presented with joint pain with swelling and fever, then probable diagnosis favours septic arthritis. When the person is presented with asymmetrical multiple joint involvement and fever is observed in case of rhematic fever. When the person is presented with multiple, symmetrical smaller joint involvement confirms the diagnosis of rheumatoid arthritis.
- **Determination of chronology (acute vs. chronic) –** the chronology of events is an important diagnostic feature and divided into onset, evolution and duration. The onset of disease is short in septic arthritis and gout and prolonged in osteoarthritis (OA), rheumatoid arthritis (RA) and fibromyalgia. Acute conditions tend to be infectious, crystal induced or reactive. Chronic conditions tend to be non inflammatory or immunological. The extent of articular involvement is often diagnostic. It may be either articular or non articular.
  - ➢ Articular disorders are usually classified based on the number of joints afflicted. The description of this kind of analysis is mentioned above. Crystal induced and infectious diseases such as gout and mono articular or oligoarticular (less than 3 joints) afflicted.
  - ➢ Non articular disorders are classified either focal or widespread. Presenting complaints secondary to tendinitis or carpal tunnel syndrome are usually focal involvement and poliomyelitis and fibromyalgia are usually diffuse in clinical presentation.
  - ➢ Upper extremities are usually involved in rheumatoid arthritis (RA) and osteoarthritis whereas lower extremities are usually involved in case of reactive arthritis and gout at the onset.
- Identification of the nature of the underlying process and the site of the complaint will enable the examiner to narrow the diagnostic considerations and to assess the need for immediate diagnostic or therapeutic intervention.
  - ➢ The clinical history should identify the precipitating events in the manifestation of the disease. Certain comorbidities usually predispose certain typical or atypical clinical presentation.
  - ➢ Diabetes mellitus may predispose carpal tunnel syndrome, renal insufficiency may predispose gout, similarly, psoriasis (psoriatic arthritis), myeloma (low back pain), osteoporosis (pathological fracture).
- Formulation of a differential diagnosis – a variety of musculo skeletal diseases may be presented with systemic features. For example, fever (SLE or infection), skin rashes (SLE or psoriatic arthritis), nail abnormalities (psoriatic or reactive arthritis), myalgia (fibromyalgia or myopathy), weakness (polymyositis or neuropathy).
- Thus, while analysing the case of musculo skeletal disease, elaborate analysis of the patient is necessary.

## Key summary of the chapter

- Rheumatic fever is a nonsuppurative, acute inflammatory complication of group A streptococcal infection, causing combination of arthritis, carditis, subcutaneous nodules and erythema marginatum. Diagnosis is based on Jones criteria to information gleaned from history, examination and laboratory investigations.
- Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease which primarily involves joints. This is characterised by multiple joint involvement, symmetric joint involvement and smaller joint involvement leading to progressive destruction of articular structures associated with systemic symptoms. Diagnosis is based on specific clinical features, laboratory investigations and imaging studies.
- Systemic lupus erythematosus (SLE) is a chronic, multisystem, inflammatory disorder of autoimmune aetiology, occurring predominantly in young women. Common manifestations may include arthralgias and arthritis; malar and other skin rashes; pleuritis and pericarditis; renal or CNS involvement haematologic cytopenias. Diagnosis is done by clinical evaluation and serological evaluation.

- Ankylosing spondylitis (AS) is a systemic disease characterized by inflammation of the axial skeleton, large peripheral joints and digits; nocturnal back pain; back stiffness; accentuated kyphosis; constitutional symptoms; cardiac conduction abnormalities. Diagnosis requires showing sacroiliitis on x-ray.
- Gout is a clinical condition where precipitation of monosodium urate crystals in the tissue can be observed usually in and around the joints. This is causing recurrent acute or chronic arthritis. Acute arthritis is initially monoarticular and often involves the 1st metatarsophalangeal joint. Symptoms include acute pain, tenderness, warmth, redness and swelling. Diagnosis requires identification crystals in synovial fluid.

## Self-Assessment: Questions for Review

- Long essay questions: No long essay questions are asked in this section.

### Short essay questions

- Describe rheumatic fever
- Explain rheumatoid arthritis
- Describe systemic lupus erythematosus (SLE)
- Explain ankylosing spondylitis
- Explain gout
- Describe differential diagnosis of joint disease

### MCQs

**1. The term 'licks the joint and bites the heart' given by William Boyd is related to**

a. Rheumatoid arthritis;
b. Rheumatic fever;
c. SLE;
d. Gout

*Answer:* (b)

**2. Swan neck deformitiy is seen in which of the following disease?**

a. Rheumatoid arthritis;
b. Rheumatic fever;
c. SLE;
d. Gout

*Answer:* (a)

**3. In which part of the body, swan neck deformity is observed in the patients of RA?**

a. Neck;
b. Knee joint;
c. Elbow joint;
d. Fingers

*Answer:* (d)

**4. Appearance of tophus is indicative of which of the following disease?**

a. Rheumatoid arthritis;
b. Rheumatic fever;
c. SLE;
d. Gout

*Answer:* (d)

**5. Which of the following contains excess amount of purine substances?**

a. Fishes;
b. Milk products;
c. Vegetable oil;
d. Sunflower oil

*Answer:* (a)

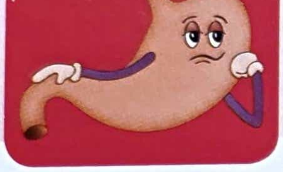
## Chapter resources

- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee brothers, New Delhi, 2005
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- https://en.m.wikipedia.org/wiki/File:Symptoms_of_SLE.png
- https://www.mayoclinic.org/diseases-conditions/ankylosing-spondylitis/symptoms-causes/syc-20354808
- https://www.researchgate.net/figure/Modified-New-York-Criteria-for-Ankylosing-Spondylitis_tbl1_260647474
- www.medical-junction.com
- www.dreamstime.com
- www.msdmanuals.com
- www.basicmedicalkey.com
- www.grepmed.com
- https://www.preferredfootankle.com/foot-conditions/gout/
- https://www.executivephysical.com/blog/understanding-the-4-stages-of-gout

***

CHAPTER

48



# Klaibya and Vandhyatva

**Learning Objectives**

- ⇨ To learn the concepts of Klaibya and Vandhyatva
- ⇨ To learn the Nidana Panchaka of Klaibya and Vandhyatvamentioned in Ayurveda textbooks
- ⇨ To enlist the types of Klaibya and Vandhyatva

## Klaibya

### Definition

**क्लैब्यमिति ध्वजानुच्छ्रायः।** Chakra, Ca.Su. – 28/18,19

*Klaibya* is the condition where there will be disturbance in erection. The person suffering from *Klaibya* is not in a position to perform sexual intercourse. Because of this, the person is not in a position to attain orgasm.

**न मूत्रं फेनिलं यस्य विष्टा चाप्सु निमज्जति।**
**मेढ्रं चोन्मादशुक्राभ्यां हीनः क्लीबः स उच्यते॥**

Katyayana; Shabda Kalpa Druma; Vachaspatya

- The urine of the person will not be containing foam or froth
- The faecal matter will sink in water
- The erection of the penis will be absent
- The absence of *Shukra* in the individual are the features seen in the person suffering from *Klaibya*.

### Synonyms of Klaibya

*Shandha, Tritiya Prakriti, Napumsaka, Purushatvahina* – reference: *Shabda Kalpa Druma;*

First three definitions are taken from *Amarakosha* – 2/6/39 and *Shabda Kalpa Druma*

### Nidana of Klaibya

**बीजध्वजोपघाताभ्यां जरया शुक्रसंक्षयात्॥154॥**
**लैन्यं संपद्यते तस्य शृणु सामान्यलक्षणम्।** Ca.Ci. – 30/154,155

*Klaibya* occurs in an individual because of following reasons. They are

- **Bijopaghataja**[1] – the defect in *Shukra* due to the morbidity in *Shukravaha Srotas*
- **Dhvajopaghataja** [2] – injury to male genital organ
- **Jara**[3] – due to Jara or old age
- **Shukra Sankshaya**[4] – due to reduced *Shukra* in the body

---

GK

[1] Here, the term Bijopaghata refers to the defect in the steps of spermatogenesis or disturbances in hormone secretion or dysfunction related to seminal vesicles or prostate gland or cryptorchidism.

[2] The male sexual function involves the following steps.
1. Intact libido
2. Ability to achieve and maintain erection
3. Ejaculation
4. Detumescence (resolution of penile erection)

Trauma to the penis leads to damage to corpora cavernosa and corpus spongiosum which is present in the shaft of the penis.

[3] As per western physiology, testosterone secretion increases in pubertal age; reduces by 20 to 50% of the peak value by the age of 80 years. Testosterone, hormone is secreted by Leydig cells located in the interstitium of testis and this hormone is responsible for the growth and division of the testicular germinal cells, which is the first stage in formation of sperms. Thus, due to the reduced secretion of testosterone, there will be hampered formation of sperms.

[4] In this context, the term Shukra Kshaya refers to reduced hormonal secretion, reduced sperm count and reduced semen production. Here, reduced hormonal secretion is observed in hypogonadism. Reduced sperm count refers to the reduced sperm production in the testis. Reduced semen production refers to reduced secretion of seminal vesicles and reduced secretion of prostate gland.

## Samanya Lakshana of Klaibya

सङ्कल्पप्रवणो नित्यं त्रियां वश्यामपि स्त्रियम्॥155॥
न याति लिङ्गशैथिल्यात् कदाचिद्याति वा यदि।
श्वासा: निवात्रय मोघसङ्कल्पचेष्टित:॥156॥
ग्लानशिक्षा निवजे: स्यादेतत् क्लैम्यलक्षणम्।
सामान्यलक्षणं ह्येतद्विस्तरेष प्रवक्ष्यते॥ 157॥ Ca.Ci. – 30/155-157

- The person will lose interest in sexual act or libido
- The person will not be in a position to satisfy woman sexually[5]
- Absence of erection[6]
- Scanty ejaculation[7]
- Breathlessness and sweating and the inability for intercourse[8] by the individual
- *Shukra*[9] (semen) contains no sperms

## Types of Klaibya

### As per Shabda Kalpa Druma and Vachaspatya

14 types of *Klaibya* are being explained.

1. *Nisarga Shanda* (impotent by nature)
2. *Ananda* (absence of *Shukra*)
3. *Paksha* Shanda (impotent for one *Paksha* or 15 days)
4. *Guroh Abhishapajanya* (manifests due to the curse of teachers or elders)
5. *Rogat* (due to the presence of disease)
6. *Devakrodhajanya* (due to idiopathic cause)
7. *Irshya Shanda* (impotence due to jealousy)
8. *Asekya* (*Mukhayoni*); this is manifested due to less amount of *Shukra* in the father
9. *Vataretas* (*Vata* dominant *Shukra*)
10. *Mukhe Bhaga* (oral sex – cunnilingus)
11. *Vyakshipta*
12. *Mogha Bija*
13. *Shaleena* – poor sexual intercourse
14. *Anyapati* – poor sexual intercourse

### As per Charaka, 4 types

1. *Bijopaghataja*
2. *Dhvajabhangajanya*
3. *Jarajanya*
4. *Shukra Kshayajanya*

### Types of Klaibya mentioned in Shabda Kalpa Druma and Vachaspatya

1. *Nisarga Shanda* and *Ananda* are *Apratikarya* (better not to be treated)
2. *Paksha Shanda* – 15 days to appropriate treatment is necessary
3. *Guru Abhishapajanya, Rogajanya* and *Devakrodhajanya* – should be treated for the period of 1 year
4. *Irshya Shanda, Asekya, Vataretas* and *Mukhe Bhaga* should be avoided
5. *Vyakshipta* and *Moghabija* should not be treated
6. *Shalina* and *Anyapati* – usually will have poor penetration or poor copulation ability

## Bijopaghataja Klaibya

शीतरुक्षात्पसंक्लिएविरुद्ध जीर्णभोजनात्।
शोकचिन्तामयत्रासात् स्त्रीणां चात्यर्थ सेवनात्।
अभिचारादविखम्भाद्रसादीनां च संक्षयात्।
बातादीनां च वैषम्यात्तथैवानरानाच्छ्रमात्॥159॥
नारीणामरसज्ञत्वात् पञ्चकर्मापचारत:।
बीजोपघाताद्भवति पाण्डुवर्ण: सुदुर्बल:॥160॥
अल्पप्राणोऽस्पर्ष प्रमदासु भवेन्नर:।
इत्पाण्डुरोगतमककामलाश्रमपीडित:॥161॥
छतीसारश्शूला: कासज्वरनिपीडित:।
बीजोपचार्ज यं Ca.Ci. – 30/158-162

- Excess consumption of *Shita* (cold in touch and potency) substances
- Excess consumption of *Ruksha* (dry) substances
- Little consumption of food
- Excess consumption of food substances which are having stones etc
- Excess consumption of incompatible food substances
- Consumption of food in the state of indigestion
- Excess grief
- Excess thinking
- Excess fearful situation exposure
- Excess sexual intercourse
- Exposure to black magic
- Lack of confidence in self
- Excess depletion of the body tissues

---

[5] Disorders in arousal and orgasm in male as well as female is attributable to psychological and emotional factors. Particularly among the young, it can be attributable to performance anxiety. Fear of pregnancy and fear of pain during intercourse are the other causes, particularly in females.

[6] Most of the occasions, it is lack of libido is the main reason of absence of erection.

[7] This is attributable to reduced secretion of seminal vesicles and prostate gland.

[8] This is attributable to reduced secretion of seminal vesicles and prostate gland.

[9] In conditions, where there is absence of secretion of epididymis is resulting absence of sperms in the semen.

- Vitiation of *Vata Dosha*
- Fasting
- Excess physical activities responsible for exhaustion
- Lack of libido
- Abnormal *Panchakarma* procedure
- Defects in sperms

## Lakshana of Bijopaghatajanya Klaibya

- *Pandu Varna* -Yellowish white discolouration
- Weakness
- Low vitality
- Less orgasm while indulging sexual activities
- *Hridroga*
- *Panduroga*
- *Tamaka* (Darkness in front the eyes)
- *Kamala*
- *Shrama* – physical exhaustion
- *Chardi* – vomiting
- *Atisara* – diarrhoea
- *Shula* – pain abdomen
- Cough
- Raised body temperature

## Dhvajabhangaja Klaibya

The term *Dhvajabhanga* refers to the injury to phallus, where in the person is unable to get erection, this leads to the inability to perform sexual intercourse.

**ध्वजभङ्गतं शृणु।।162।।**
**अत्यम्ललवणक्षारविरुद्धासात्म्य भोजनात्।**
**अत्यम्बुपानाद्विपमात् पिष्ठानगुरुभोजनात्।।163।।**
**दधिक्षीरानूपमांससेवनायाधिकर्षणात्।**
**कन्यानां चैव गमनादयोनिगमनादपि।।164।।**
**दीर्घरोग चिरोत्सृष्टां तथैव च रजखलाम्।**
**दुर्गन्धां दुष्टयोनिं च तथैव च परिलुताम्।।165।।**
**ईदृशीं प्रमदां मोहायो गच्छेत् कामहर्षितः।**
**चतुष्पदाभिगमनाच्छेफसश्चाभिघाततः।।166।।**
**अधावनाद्वा मेदस्य शस्त्रदन्तनखक्षतात्।**
**काष्ठप्रहारनिष्पेषाच्छूकानां चातिसेवनात्।।167।।**
**रेतसय प्रतीघातादुजभङ्गः प्रवर्तते।**
**( नवन्ति यानि रूपाणि तस्य वक्ष्याम्यतः परम्। )**
**श्वयथुर्वेदना मेरे रागचैवोपलक्ष्यते।।168।।**
**स्फोटाच तीम्रा जायन्ते लिङ्गपाको भवत्यपि।**
**मांसवृद्धिर्भवेच्चास्य व्रणाः क्षिप्रं भवन्त्यपि।।169।।**
**पुढाकोदकसङ्काशः लावः श्यावारुणप्रभः।**
**पीकुरुते चापि कठिनश्च परिग्रहः।।170।।**
**ज्वरस्तृष्णा भ्रमो मुर्च्छाच्छर्दिश्चास्योपजायते।**
**रक्तं कृष्णं स्त्रवेद्यापि नीलमाविललोहितम्।।171।।**
**अग्निनेव च दुग्धस्य तीम्रो दाहः संवेदनः।**
**यस्तौ वृषणयोर्वाऽपि सीवन्यां बगेषु च।।172।।**
**कदाचित्पिच्छिलो वाऽपि पाण्डुः स्त्रावश्च जायते।**
**श्वयथुर्जायते मन्दः स्तिमितोऽल्पपरिस्त्रवः।।173।।**
**चिराच पाकं व्रजति शीघ्रं वाऽथ प्रमुच्यते।**
**जायन्ते क्रिमयधापि क्रियते पूर्तिगन्धि च।।174।।**
**विशीर्यते मणिस्य मेहूं मुष्कावथापि च।**
**ध्वजभङ्गकृतं क्लैम्यमित्येतत् समुदाहृतम्।।175।।**
**एतं पञ्चविधं केचिङ्गजभङ्गं प्रचक्षते।** Ca.Ci. – 30/162-175

- Excess consumption of *Amla* (sour), *Lavana* (salt) *Rasa* substances
- Excess consumption of *Kshara* (alkaline) substances
- Excess consumption of *Viruddha* (unwholesome) substances
- Excess consumption of *Asatmya* (incompatible) substances
- Excess consumption of water
- Frequent consumption of food at improper time and quantity
- Excess consumption of *Pishtanna* (flour)
- Excess consumption of *Guru* (heavy to digest) substances
- Excess consumption of *Dadhi* (curds)
- Excess consumption of milk and milk products
- Excess consumption of meat of marshy animals
- Due to the primary disease or if the person is suffering from chronic disease
- Excess intercourse with virgin women
- Intercourse in other orifices other than penovaginal intercourse
- Intercourse with menstruating woman
- Intercourse with woman who has foul smell from genital organs
- Intercourse with woman who has defect in genital organs
- Intercourse with lower animals (four legged animals)
- Trauma to phallus
- Not cleaning the phallus properly
- Injury to the phallus by weapons, teeth and nails
- Suppression of the urge of ejaculation during intercourse

## Lakshana of Dhvajabhangajanya Klaibya

- Swelling and pain in the phallus
- Redness of the phallus
- Formation of small blisters around the phallus

- Suppuration in the phallus
- Fleshy growth in the phallus along with ulcer formation.
- Exudation of fluid which appears like rice water or which is brownish black or pink in colour.
- Circular and hard in duration below the glans penis.
- Raised body temperature, thirst, giddiness and vomiting.
- Reddish, blackish bluish turbid secretion from the wound in the genital region.
- Severe burning sensation or pain in the lower abdomen or scrotum or genital region.
- Slowly progressive swelling.
- Sensation of covering of the part with wet cloth.
- Little secretion from the wound around the genital region.
- Slowly suppurative swelling.
- Foul smelling discharge through the wound.
- Destruction of phallus and scrotum due to proliferation of microorganisms.
- *Dhvajabhanga* is of 5 types – *Vataja, Pittaja, Kaphaja, Raktaja* and *Sannipataja.*

### Jarasambhavajanya Klaibya

*Klaibya* which manifests in an individual due to old age.

लैव्यं जरासंभवं हि प्रवक्ष्याम्यथ तच्छृणु॥176॥
जघन्यमध्यप्रवरं वयस्त्रिविधमुच्यते।
अतिप्रवयसां शुकं प्रायशः क्षीयते नृणाम्॥177॥
रसादीनां संक्षयाच्च तथैवावृष्यसेवनात्।
बलवीर्येन्द्रियाणां च क्रमेणैव परिक्षयात्॥178॥
परिक्षवादायुपश्चाप्यवाहाराच्छ्रमात् क्रमात्।
जरासंभवजं क्लैम्यमित्येतैर्हेतुभिर्नृणाम्॥179॥
जायते तेन सोऽस्वये श्रीषधातुः सुदुबला।
विण दुर्बखो दीनः क्षिप्रं व्याधिमधासुते॥180॥
एतजरासंभवं हि Ca.Ci. – 30/176-181

- Excess depletion of *Rasa* etc *Dhatu* from the body.
- Excess consumption of substances which are considered as *Avrishya* (unaphrodisiac).
- In conditions where there is gradual loss of strength, valour, function of *Indriya.*
- In condition where there is gradual loss of life span.
- Fasting
- Excess physical exertion.
- Condition which leads to fatigue without any physical exertion.

### Lakshana of Jarajanya Klaibya

- Excess depletion of body tissues from the body.
- Weakness
- Discolouration of the body.
- Ill look.
- Quickly afflicted to various diseases.

### Kshayaja Klaibya

चतुर्थ क्षयजं शृणु।
अतीव चिन्तनाचैव शोकात्क्रोधाद्भयात्तथा॥189॥
ईर्ष्यत्कण्ठामदोद्वेगान् सदा विशति यो नरः।
कृशो वा सेवते रुक्षमन्नपानं तथौषधम्॥182॥
दुर्बलप्रकृतिश्चैव निराहारो भवेयदि।
असात्म्य भोजनाचापि हृदये यो व्यवस्थितः॥183॥
रसः प्रधानधातुर्हि श्रीयेताशु ततो नृणाम्।
रक्तादयश्च सीयन्ते धातवस्तस्य देहिनः॥184॥
शुक्रावसानास्तेभ्योऽपि शुक्रं धाम परं मतम्।
चेतसो वाऽतिहर्षेण व्यवायं सेवते ऽति यः॥185॥
तस्याशु क्षीयते शुक्रं ततः प्राप्नोति संक्षयम्।
घोरं व्याधिमवाप्नोति मरणं वा स गच्छति॥186॥
शुक्रं तस्माद्विशेषेण रक्ष्यमारोग्यमिच्छता।
एवं निदानलिङ्गाभ्यामुक्तं लैव्यं चतुर्विधम्॥187॥
Ca.Ci. – 30/181-187

- Excess thinking
- Excess grief
- Excess anger
- Excess fear
- If the person is continuously having jealousy, mental excitement.
- If the person is emaciated and he is taking *Ruksha* food substances and drinks continuously.
- Weak *Prakriti* (constitution) and he is not taking any food substances.
- The person is continuously taking incompatible food substances.

### Lakshana of Kshayajanya Klaibya

- Rapid depletion of body tissues.
- Rapid depletion of *Shukra* from the body.
- Rapid manifestation of the disease or rapid death.

### Sadhyasadhyata of Klaibya

केचित् क्लैम्ये त्वसाध्ये द्वे ध्वजभङ्गक्षयोद्भवे।
बदन्ति शेफसच्छेदाषषोत्पाटनेन च॥188॥
मातापित्रोयजदोषादशुभैवाकृतात्मनः।
गर्भस्वस्य यदा दोषाः प्राप्य रेतोवहाः सिराः॥189॥
शोषयन्त्याशु तमाशात्रेतश्चाप्युपहन्यते।
तत्र संपूर्णसर्वाङ्गः स भवत्यपुमान् पुमान्॥190॥
पते त्यसाध्या व्याख्याताः सन्निपातसमुच्छ्रयात्॥ Ca.Ci. – 30/188-190

- *Dhvajabhangajanya* and *Kshayajanya Klaibya* are *Asadhya*[10] (incurable)
- *Dhvajabhanga* caused by amputation of phallus and removal of testicles is *Asadhya* (incurable)
- *Klaibya* manifested due to the defect in *Bija* from maternal or paternal side is *Asadhya* (incurable)
- *Klaibya* manifested in an individual due to *Ashubha Karma* (unclean activities) is *Asadhya* (incurable)
- If *Tridosha* vitiation is observed in the patient of *Klaibya* is *Asadhya* (incurable)
- If the person is suffering from generalised illness is *Asadhya* (incurable)

## Vandhyatva

### Introduction

*Vandhyatva* is a spectrum of diseases where the woman who has lost her *Artava.* In other words, the woman has disturbances in getting conception i.e. barren or childless woman. This is not manifested as an individual and independent disease, it occurs as a association of other diseases or because of consumption of different medicines. This is not mentioned in all major treatises of *Ayurveda,* except in *Harita Samhita.* As per *Harita,* it is not the attainment of *Garbha* considered as *Vandhyatva,* it is not having the children or progeny is considered as *Vandhyatva.* This definition of *Vandhyatva* is not suitable nowadays. That means the non formation of *Garbha* is considered as *Vandhya. Sushruta* has mentioned *Vandhya* as a type of *Yonivyapat,* whereas *Charaka* has mentioned *Vandhya* as *Bijadushtijanya Vikara. Kashyapa* has mentioned *Vandhyatva* as one of 80 types of *Vataja Vikara.*

**वन्ध्यां नष्टातवां विद्याहि** Su.Ut. – 38/10; Ma.Ni. – 62/2

*Vandhya*[11] is the spectrum of the diseases, where the lady is will have absence of menstruation

**यदा ह्यस्याः शोणिताख्ये बीजे गभाशयस्थे निर्वर्तकं थीजं प्रदुष्यति तदा बन्ध्यां जनयति।** A.San.Sha. – 2/30

The woman who has congenital or developmental anomalies related to female reproductive system is responsible for *Vandhyatva.*

## Nidana of Vandhyatva

There are no direct references related to *Vandhyatva* as far as *Ayurveda* literatures are concerned. We have to take indirect references for the same.

**मिथ्याचारेण ताः स्त्रीणां प्रदुष्टेनार्तवेन च।**
**जायन्ते बीजदोषाच्च देवाच्च शृणु ताः पृथक्॥8॥** Ca.Ci. – 30/8

**एवमेव पुरुषस्य यदा बीजे बीजभागः प्रदोषमापद्यते, तदा वन्ध्यं जनयति .....॥** Ca.Sha. – 4/31

**यदा स्त्रिया दोषप्रकोपणोक्तान्यासेवमानाया दोषाः प्रकुपिताः शरीरमुपसर्पन्तः शोणितगर्भाशयावुपपद्यन्ते, न च कात्स्नर्द्रन शोणितगर्भाशयौ दूषयन्ति, तदेयं गर्भं लभते स्त्री; तदा तस्य गर्भस्य मातृजानामवयवानां अन्यतमोऽवयवो विकृतिमापद्यत एकोऽथवाऽनेके, यस्य यस्य ह्यङ्गावयवस्य बीजे बीजभागे वा दोषाः प्रकोपमापद्यन्ते, तं तमवयवं विकृतिराविशति। यदा ह्यस्याः शोणिते गर्भाशय बीजभागः प्रदोषमापद्यते, तदा वन्ध्यां जनयति ..............**
**यदा त्वस्याः शोणितेगर्भाशयबीजभागावयवः स्त्रीकराणां च शरीरबीजभागानामेकदेशः प्रदोषमापद्यते, तदा स्त्र्याकृतिभूयिष्ठामस्त्रियं वार्तां नाम जनयति, तां स्त्रीव्यापदमाचक्षते॥** Ca.Sha. – 4/30

- Inappropriate diet[12] and regimen[13] followed by

---

GK

[10] All the situations mentioned in this context are showing low physical strength of the patient and more severe form of the disease of the disease; more potent aetiological factor exposure. For example, if the fracture of shaft of penis occurs, that leads to the permanent disability related to erection, thus the person is unable to have erection, thereby unable to perform sexual intercourse, thus the person may have infertility.

- The main source of formation of spermatozoa is testicles. If the testes are removed, the source of spermatogenesis is removed, thus, the person may have infertility.
- In case of Bija Dushti, the person may have defects in the sperm or ovum.
- It is being mentioned that in case of febrile condition, there will be poor spermatogenesis.

Thus, all conditions mentioned in poorer prognosis, the person will have extreme nutrition deficiency which may be required for spermatogenesis.

[11] This is observed in the patients who are suffering from endocrine dysfunction, structural diseases of female reproductive system, anaemia due to chronic diseases.

[12] When the lady indulges in inadequate diet or inappropriate diet, that will lead to inflammatory responses in the stomach, as the food remains in the stomach for the period of 2 hours. In other words to say, Adhyashana, Vishamashana, Samashana, Atyashana, Vishamashana, Rukshashana etc various ways of abnormal food patterns will lead to inflammation in the stomach.

- Inflammatory response in the stomach will lead to gastric mucosal damage
- Along with inflammatory response, there will be infective process occurs as most of the foods consumed are having carbohydrate in them
- Due to the frequent food substances consumption, there will be increase of pH of the stomach (normal pH necessary for digestion is 1.8 to 3.5), this will lead to alkalinity of gastrium, leading to inadequate conversion of pepsinogen into pepsin leading to poor conversion of macromolecules into intermediate to micromolecules

[13] When we speak of regimen refers to different kinds of activities which are more or less than one's capacity; the following mechanisms may occur in the body.

- There will be sequential depletion of carbohydrate, fats and protein in the body along with decrease in water and electrolytes
- This will lead to the manifestation of metabolic acidosis (ketoacidosis and lactic acidosis)

women

- *Afflicted Artava* by vitiated *Dosha*[14]
- *Bija Dosha*[15] – defect in the ovum or structural defect in *Garbhashaya* (uterus)
- *Daiva*[16]– idiopathic or supra human power

इत्येतैर्लक्षणैः प्रोक्ता विंशतिर्योनिजा गदाः॥3 7॥
न शुक्रं धारयत्येभिर्दोषैर्योनिरुपद्रुता।
तस्माद्गर्भं न गृह्णाति स्त्री गच्छत्यामयान् बहून्॥3 8॥
गुल्माशःप्रदरादींश्च वाताद्यैश्चातिपीडनम्। Ca.Ci. – 30/37,38

- By exposure to above etiological factors, there will be manifestation of disease in the female reproductive system due to vitiated *Dosha*
- *Shukra* is not taken up by abnormal female reproductive system
- Pregnancy will not occur in the women who are having abnormal reproductive system.

यदा स्त्रिया दोषप्रकोपणोक्तः न्यासेवमानाया दोषाः प्रकुपिताः शरीरमुपसर्पन्तः शोणितगर्भाशयावुपपद्यन्ते तदा ख्याकृतिभूयिष्ठा-मस्त्रियं वार्ता नाम जनयति, तां स्त्रीव्यापदमाचक्षते। Ca.Sha. – 4/30

- When a pregnant lady uses aggravating factors, the *Dosha* get vitiated and in course of spreading reach the ovum and uterus, but does not affect them entirely.
- She conceives and the foetus get damaged in maternally derived organs.
- This child will be predominantly female shaped but she will be unable to conceive and in course of spreading of vitiated *Dosha*, these *Dosha* reach the ovum and uterus, but does not affect them entirely. The lady conceives and fetus gets damaged in materially derived organs. In this situation, child may be either female child with defects or male child with predominantly soft organs will be produced.

## Types of Vandhya

### As per Chakrapani

सत्र- जाऽपीति अवन्ध्याऽपि सती कथं चिरेण गर्नें विन्दति

Chakra, Ca.Sha. – 2/5

**3 types of Vandhyata are mentioned**

- **Vandhya –** absolute inability to conceive
- **Sapraja –** in this condition, the lady is unable to conceive in her active reproductive age group after giving birth to one or more children
- **Apraja –** in this type, the lady may conceive after receiving appropriate treatment

### As per Harita

*Harita Samhita* 3rd *Sthana*: 47th chapter

**6 types:**

1. **Kakavandhya:** In the type of *Vandhyatva* where the lady is unable to have conception after one childbirth
2. **Anapatya:** In this type, the lady is unable to conceive at all
3. **Garbhasravi:** In this type, the lady may have repeated abortions and thus the lady will have unsuccessful pregnancies
4. **Mritavatsa:** In this type, the lady may have unsuccessful pregnancies due to intrauterine death or stillbirths
5. **Balakshaya:** In this type, the lady is not in a position to conceive due to *Dhatu Kshaya, Bala Kshaya.* This may indicate poor development of female reproductive system.
6. **Garbhakosha Bhanga:** In this type, the lady will have disturbances in fertility due to prolapse of uterus or injury to female reproductive system

### Sadhyasadhyata of Vandhyatva

*Sadhyasadhyata* depends upon the duration of exposure of the woman with aetiological factor, virulence of aetiological factor and its impact on human body, physical stamina of the woman etc.

- *Vandhyatva*[17] in which the woman has congenital absence of uterus and *Artava* is *Asadhya* (incurable)
- All types of *Vandhyata* mentioned in *Harita Samhita* are *Sadhya* [18] (curable)

---

G K

- In this instances, the improper regimen such as sitting in squatting position for longer time period or insertion of foregin body into the female genital tract etc is mainly related to either abdomen or lower abdomen. This will lead to the initiation of metabolic acidosis from the parts where cell injury is occurring.

[14] Artava may become abnormal by either vitiation of single or dual or triple Dosha vitiation. Ayurveda says Artava as Upadhatu of Rasa. Affliction of Rasa by abnormal diet pattern may lead to affliction of Artava Dhatu. For example, if the indulges in excess consumption of Katu Rasa substances, that may lead to the abnormal increase of Pitta or Vata in the body or Artava too.

- If the lady indulges in Katu Rasa consumption along with regimen of sitting in squatting position for longer time likely to have affliction of Artava.
- If the lady indulges in Katu, Amla Rasa substances along with regimen of sitting for longer time, or inserting metallic instruments into the vagina etc may have severe affliction of Artava.

[15] The term Bija Dosha refers to congenital defect observed in the Garbhashaya of the lady or structural defect of ovum. In both of the occasions, the lady will have inability to conceive

[16] In this, the exact cause of Vandhyatva cannot be analysed even after elaborate case history taking.

[17] In this, the woman will have structural anomalies related to female reproductive system. This kind of anomaly may be observed in either vagina or uterus or uterine tube or ovary. The anomaly related to pituitary gland (function regulated by FSH, LH) may also have an impact on functioning of female reproductive system. In these occasions, the prognosis may be poor.

[18] In this, if there is functional derangements, that can be corrected by administering appropriate medications or modalities of treatment (purification or pacification therapy).

## Key summary of the chapter

- क्लेव्यमिति ध्वजानुच्छ्रायः Chakra, Ca.Su. – 28/18,19
- Klaibya is the condition where there will be erectile dysfunction, inability to perform sexual intercourse and the person will have orgasmic dysfunction.
- **As per Charaka Samhita,** 4 types of Klaibya are mentioned. They are Bijopaghataja, Dhvajabhangaja, Jarajanhya and Shukra Kshayajanya.
- **As per Shabda Kalpa Druma, Vachaspatya,** 14 types of Klaibya are mentioned. They are Nisarga Shanda (impotent by nature); Ananda (absence of Shukra); Paksha Shanda (impotent for one Paksha or 15 days); Guroh Abhishapajanya (manifests due to the curse of teachers or elders); Rogat (due to the presence of disease); Devakrodhajanya (due to idiopathic cause); Irshya Shanda (impotence due to jealousy); Asekya (Mukhayoni); this is manifested due to less amount of Shukra in the father; Vataretas (Vata dominant Shukra); Mukhe Bhaga (oral sex – cunnilingus); Vyakshipta; Mogha Bija; Shaleena – poor sexual intercourse; Anyapati – poor sexual intercourse
- As far as Sadhyasadhyata of the disease is concerned, Dhvajabhanga, Kshaya, Bijadoshaja, Klaibya due to unclean activities, Tridosha dominant Klaibya and Klaibya from generalised illness is considered to be incurable.
- वन्ध्यां नष्टातवां विद्याहि Su.Ut. – 38/10; Ma.Ni. – 62/2
- Vandhya is the spectrum of the diseases, where the lady is will have absence of menstruation.
- Mithyachara (abnormal diet and regimen), Pradushta Artava (abnormal Artava), Bija Dosha (congenital defects of ovum or uterus) and Daiva (causes which are beyond suprahuman power) are the major causes of any of diseases related to woman.
- **As per Chakrapani,** 3 types of Vandhyatva are mentioned: Vandhya, Sapraja and Apraja; whereas **Harita** has mentioned 6 types of Vandhyatva: Kakavandhya, Anapatya, Garbhasravi, Mrtavatsa, Balakshaya and Garbhakosha Bhanga.
- **Sadhyasadhyata of Vandhyatva:** Sadhyasadhyata depends upon the duration of exposure of the woman with aetiological factor, virulence of aetiological factor and its impact on human body, physical stamina of the woman etc. Vandhyatva in which the woman has congenital absence of uterus and Artava is Asadhya (incurable) and all types of Vandhyata mentioned in Harita Samhita are Sadhya (curable).

## MCQs

**1. Sankhya Samprapti of Klaibya as per Charaka is**

a. 4; b. 7;
c. 6; d. 15

*Answer*: (a)

**2. Sankhya Samprapti of Klaibya as per Shabda Kalpa Druma is**

a. 4; b. 14;
c. 6; d. 15

*Answer*: (b)

**3. The term Paksha Shandha refers to impotence for a period of**

a. 10 days; b. 30 days;
c. 15 days; d. 7 days

*Answer*: (c)

**4. As per Vachaspatya, Sankhya Samprapti of Klaibya is**

a. 14; b. 4;
c. 6; d. 7

*Answer*: (a)

**5. The term detumescence refers to**

a. Erection; b. Ejaculation;
c. Emission; d. Resolution

*Answer*: (d)

**6. As per Sushruta, the term Vandhya refers to**

a. Kashtartava; b. Krichrartava;
c. Nashtartava; d. Anartava

*Answer*: (c)

**7. As per Harita, the types of Vandhya are**

a. 3; b. 4;
c. 6; d. 8

*Answer*: (c)

**8. When a lady is unable to conceive after one child birth, even after repeated attempts is termed as**

a. Mritavatsa; b. Kakavandhya;
c. Apraja; d. Anapatya

*Answer*: (b)

**9. As per Chakrapani, the types of Vandhya are**

a. 3; b. 4;
c. 6; d. 8

*Answer*: (a)

**10. Kashyapa has mentioned Vandhyatva in .............types of Vikara.**

a. Vataja; b. Pittaja;
c. Kaphaja; d. Raktaja

*Answer*: (a)

## Chapter resources

- Charaka Samhita, Chikitsa Sthana – 30th chapter: Yonivyapat Chikitsa Adhyaya
- Charaka Samhita, Sharira Sthana – 4th chapter: Mahati Garbhavakranti Adhyaya
- Charaka Samita, Sharira Sthana – 2nd chapter: Atulya Gotriya Adhyaya
- Sushruta Samhita, Uttara Tantra – 38th chapter: Yonivyapat Pratishedha Adhyaya
- Harita Samhita, Tritiya Sthana: 47th chapter: Vandhya Upakrama Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

## CHAPTER

## 49

# Sexual Dysfunction and Infertility

### Learning Objectives

- ⇨ The description of the terms sexual dysfunction and infertility
- ⇨ To order the interpret relevant investigations of sexual dysfunction and infertility
- ⇨ To know the description of differential diagnosis of sexual dysfunction and infertility

## Introduction

Sexual dysfunction and infertility are two different symptoms that can disturb the emotional or mental peace of the couple; each of which are having distinctive implications. Sexual dysfunction may disturb the couple only; whereas presenting complaint of infertility may disturb the couple in association with people who are associated with these couple and thus leading to the social disturbances too. Earlier, discussion in related to sexual dysfunction and infertility were considered to be a taboo, but now because of excess information available in the social media, internet and peer influences.

**Figure 217:** Sexual dysfunction

There are two terms used in the field of infertility, infertility and sterility. Both literally mean inability to conceive after one year of sexual life without contraception when the couple are anxious to have progeny. Some distinguish the two terms with slight difference. Sterility refers to the absolute state of inability to conceive while infertility refers to the relative state of failure to conceive. Infertility can be either primary, where the conception has never occurred or secondary, where conception has failed to occur after a period of fertility.

## Sexual Dysfunction

Male sexual function involves

1. Intact libido (sexual desire)
2. Ability to achieve and maintain erection
3. Ejaculation and orgasm
4. Detumescence

Male sexual dysfunction (libido, erection, ejaculation, orgasm and detumescence) interferes in or ability to engage in sexual intercourse. We are going to analyse each of these parameters.

- **Libido:** This is the conscious component of sexual function. Decreased libido manifests as a lack of sexual interest or a decrease in frequency and intensity of sexual thoughts, either spontaneous or in response to erotic stimuli. Libido is sensitive to testosterone levels as well as to general nutrition, health and drugs. Conditions particularly likely to decrease libido include hypogonadism, uremia and depression. Antidepressants and antipsychotics are likely to produce reduced libido.

- **Erection:** Erection occurs as the result of a complex neuropsychological process. Higher cortical input and a sacrally mediated parasympathetic reflex are combine to stimulate erection. Nerve output signals through the pudendal nerves, which traverse the posterolateral aspect of the prostate. Terminating in penis, these nonadrenergic, noncholinergic nerves activate nitric oxide synthase, producing nitric oxide, which relaxes smooth muscle lining the sinusoidal spaces that connect the arterioles and venules within the corpora cavernosa. The blood flow within the sinusoids increases markedly, distending them and compressing the venules, causing veno occlusion. The increase inflow and veno-occlusion together produces penile rigidity.
- **Ejaculation and orgasm:** Ejaculation is controlled by the sympathetic nervous system, leading to contraction of epididymis, vas derferens, prostate, muscles of pelvic floor. In addition, the neck of the bladder closes, preventing retrograde ejaculation of semen into the bladder. Orgasm is the highly pleasurable sensation that occurs in the brain generally simultaneously with ejaculation.
- **Detumescence:** Restoration of size of the penis to the normal size after ejaculation and orgasm.

## Erectile Dysfunction

Erectile dysfunction is the inability to attain or sustain an erection satisfactory for sexual intercourse. Most erectile dysfunction is related to vascular, neurological, psychological and hormonal disorders. Drug use can also be a cause for ED. Evaluation typically includes screening for underlying disorders and measuring testosterone levels. Earlier, the term impotence was used, which was replaced by erectile dysfunction.

- Primary ED (i.e. man has never been able to attain or sustain erections) is rare and is almost always due to psychological causes (guilt, fear of intimacy, depression or severe anxiety).
- Most often, ED is secondary, (i.e. a man who previously could attain and sustain erections, but no longer can). Over 80% of secondary ED cases have organic pathology. Psychological factors must be considered in every case.
- Major organic causes of secondary ED are vascular (penile atherosclerosis) and neurological (stroke, partial complex seizures, multiple sclerosis, peripheral neuropathy, autonomic nervous dysfunction) disorders, often stemming from atherosclerosis and diabetes mellitus; complications of surgery, prostate surgery in particular; hormonal disorders (hypogonadism); drugs (excess alcohol consumption) and structural diseases of penis (priapism).
- Psychological causes of ED include performance anxiety, stress or mood disorder (depression in particular).
- Diagnosis is done by clinical evaluation, screening for depression and assessing the level of testosterone in the patient

## Female Sexual Dysfunction

Female sexual function involves

1. Intact libido (sexual desire)
2. Sexual arousal due to environment and partner
3. Vaso congestion and lubrication of vagina and external genitalia
4. Orgasm

Female sexual dysfunction involves disturbances in one or more of above said parameters. We will look into each of the parameters.

- **Intact libido:** Brain areas involved in cognition, emotion, motivation and organization of genital congestion are all activated. Neurotransmitters acting on specific receptors are involved. Based on known actions of drugs and on animal studies, some neurotransmitters appear to be prosexual, they include dopamine, norepinephrine, etc.
- **Sexual arousal due to environment and partner:** Privacy for the couple, surroundings of the environment where the couple reside and foreplays done by sexual partner makes the female to get sexually aroused.
- **Genital congestion:** This reflexive, autonomic response occurs within seconds of an erotic stimulus and causes genital engorgement and lubrication. Smooth muscle cells around blood spaces in the vulva, clitoris, and vaginal arterioles dilate, increasing blood flow (engorgement) and transudation of interstitial fluid across vaginal epithelium. As women age, basal genital blood flow decreases, but genital congestion in response to erotic stimuli may not.
- **Orgasm:** Peak excitement occurs, characterized by contractions of pelvic muscles every 0.8 second, and is followed by slow release of genital congestion.
- Female sexual dysfunction may involve decreased or increased sexual responsiveness. Classification is determined by symptoms. There are 5 major categories of decreased sexual responsiveness and one of increased sexual responsiveness (persistent genital arousal disorder).
- **Sexual desire/ interest disorder:** is absence of or decrease in sexual interest, desire, sexual thoughts and fantasies and an absence of responsive desire.
- **Sexual arousal disorder:** is lack of subjective genital arousal or both.
- **Orgasmic disorder:** involves orgasm that is absent, markedly diminished in intensity, or markedly

delayed in response to stimulation despite high levels of subjective arousal.

- **Vaginismus:** reflexive tightening around vagina when vaginal entry is attempted or completed despite woman's expressed desire for penetration and when no structural or other physical abnormalities are present.
- **Dyspareunia:** This is pain during attempted or completed vaginal penetration or intercourse. Provoked vestibulodynia (formerly called as vulvar vestibulitis), the most common type of superficial (introital) dyspareunia., is a chronic pain syndrome associated with altered immune function and sensitization of nervous system.
- **Persistent genital arousal disorder:** involves excessive genital arousal.

A disorder is diagnosed, when symptoms cause distress. Some women may not be distressed or bothered by decreased or absent sexual desire, interest, arousal or orgasm.

- Almost all women with sexual dysfunction have features of more than one disorder. For example, chronic dyspareunia with provoked vestibulodynia (PVD) often leads to sexual desire/ interest and arousal disorders; impaired arousal may make sexual intercourse less enjoyable or even painful, decreasing the likelihood of orgasm and subsequent sexual desire. However, dyspareunia due to impaired lubrication may occur as an isolated symptom in women with a high level of sexual desire, interest and subjective arousal.
- Female sexual disorders may be secondarily categorized as lifelong or acquired; situation specific or generalized; mild, moderate or severe based on the degree of distress it causes to the woman.
- Although the research is limited, these disorders probably apply equally to women in heterosexual or homosexual relationships.
- Diagnosis is done by conducting interview with both partners, separately and together; gentle pelvic examination, primarily to identify causes of dyspareunia.

## Infertility-Male

### Introduction

**Incidence:** In hospital statistics, the incidence is 10%. In general population, the incidence of infertility is 2 – 5%.

**Effect of infertility:** In the male dominant society of India, for infertility, the female partner is generally blamed and she becomes the victim of social gossip for barrenness. This gradually brings mental stress to the woman, later leads to psychosomatic ill health and later which may lead to the possibility of suicide too. In most of the occasions, infertility brings forth family unhappiness, marital disharmony and ends in divorce.

### Factors necessary for successful fertility

1. Testis must produce healthy sperm.
2. Sperm has to be deposited at the external os through satisfactory sexual intercourse. This has to be transported through cervical mucus, uterine tube and tubal lumen.
3. The ovary must produce healthy ovum by ovulation and ovum is picked up by the fallopian tube.
4. Fertilisation occurs at the tubal lumen and the zygote is transported through the tube to be implanted in the healthy progesterone controlled endometrium. The embryo grows to healthy baby in uterine incubator and baby is safely delivered.

### Causes of infertility

1. **Systemic factors:** Age above 45 years, obesity, fatigue, heavy smoking, alcoholism
2. **Psychological factors:** nervous tension about sexual intercourse or performance anxiety, psychiatric illness causing impotency
3. **Endocrinopathy:** Hypothalamic pituitary dysfunction, hypothyroidism, diabetes mellitus
4. **Immunological causes:** Sperm auto agglutinating antibodies develop against sperm in 3-5% of the cases in vas obstruction, orchitis or testicular biopsy
5. **Coital difficulty:** Ignorance about sex, no consummation of marriage in 5% of the cases, less frequency of sexual intercourse
6. **Genital causes:**
   a. **Defective spermatogenesis:** Undescended testis, hypospadias, Klinefelter syndrome (small firm testis), testicular damage secondary to small pox, mumps, varicocele, huge hydrocele
   b. **Genital duct obstruction:** Herniorrhaphy repair, hydrocele repair, vas ligation, gonococcal urethritis etc.

### Secondary infertility factors

- Ageing
- Diabetes mellitus
- Obesity
- Heavy smoking
- Heavy alcoholism
- **Endocrinopathy:** hypothyroidism, adrenal hyperplasia
- **Psychological factors:** mental stress
- **Genital factors:** herniorrhaphy repair, hydrocele repair, vas ligation, male reproductive systemic

infections

**Investigations for male infertility:** Investigations of infertility should be started within 12 months of sexual intercourse without contraception. The investigations should be completed within two years.

Before semen analysis report, ABO Rh, PPBS, urine analysis has to be done in investigation of male infertility.

### Investigation of male infertility will involve 2 steps:

**Step 1:** Thorough clinical evaluation of husband and wife, including careful history, physical examination, examination of private parts of couple. The clinical history should include history of sexual function, sexual frequency, smoking, addition, systemic disease. It is followed by total health checkup, genital organs examination. Testicular volume is measured by orchimeter. Normal testicular volume is 90-93 ccm.

**Step 2:** Semen analysis of the husband: Husband goes to the standard laboratory after 3 days of abstinence, ejaculates in a wide mouth glass jar on masturbation or brings within 2 hours to the laboratory on collecting withdrawal specimen (without using condom) in a wide mouthed jar. Semen is examined after ½ an hour of collection on liquefaction.

| Normal semen report | Abnormal semen report |
|---|---|
| Volume 2 – 5 ml | Aspermia – absence of semen |
| | Oligospermia – low volume less than 2 ml and high volume more than 5 ml |
| Sperm count 20 million or above/ ml | Azoospermia – 10% all infertile male – absence of sperm |
| Normal (20-280 million/ ml) | Oligozoospermia – sperm count less than 10 million/ ml. |
| | Polyzoospermia – sperm count more than 250 million/ ml |
| Sperm morphology | |
| Normal sperms 60% or above | |
| Sperm motility – 60% one hour; 50% 2 hours | |
| | Grade 0 – no motion (necrozoospermia) |
| Grade 3 – Good; Forward progression with good speed | Grade 1 – Poor; weak or sluggish forward progression of sperm |
| Grade 4 – Excellent – vigorous rapid forward movement | Grade 2 – Moderate; Definite forward progression movement |
| Pus cells – 1-5 / high power field | Pus cells > 5/ high power field indicates infection of genital tract |
| Fructose content – derived from seminal vesicle; normal 120-180 mg/ dl; this is not routinely tested | Fructose content is absent in azoospermia which helps to identify seminal duct obstruction where fructose content becomes absent. |
| On normal semen report, no repeat semen test becomes necessary | On abnormal semen report, 3 semen testing at monthly interval is needed from standard laboratory. |

On report of azoospermia, investigations on wife is suspended.

## Female Infertility

### Introduction:

There are two terms used in the field of infertility, infertility and sterility. Both literally mean inability to conceive after one year of sexual life without contraception when the couple are anxious to have progeny. Some distinguish the two terms with slight difference. Sterility refers to the absolute state of inability to conceive while infertility refers to the relative state of failure to conceive. Infertility can be either primary, where the conception has never occurred or secondary, where conception has failed to occur after a period of fertility.

**Incidence:** In hospital statistics, the incidence is 10%. In general population, the incidence of infertility is 2 – 5%.

**Effect of infertility:** In the male dominant society of India, for infertility, the female partner is generally blamed and she becomes the victim of social gossip for barrenness. This gradually brings mental stress to the woman, later leads to psychosomatic illhealth and later which may lead to the possibility of suicide too. In most of the occasions, infertility brings forth family unhappiness, marital disharmony and ends in divorce.

### Factors necessary for successful fertility

5. Testis must produce healthy sperm.
6. Sperm has to be deposited at the external os through satisfactory sexual intercourse. This has to be transported through cervical mucus, uterine tube and tubal lumen.
7. The ovary must produce healthy ovum by ovulation and ovum is picked up by the fallopian tube.
8. Fertilisation occurs at the tubal lumen and the zygote is transported through the tube to be implanted in the healthy progesterone controlled endometrium. The embryo grows to healthy baby in uterine incubator and baby is safely delivered.

One or multiple factors of the above mechanisms are responsible for the complaint of infertility. It could be either physiological or pathological.

- **Physiological:** Infertility is present before puberty, after menopause, during pregnancy and sometimes during lactation. During these periods, ovulation does not occur. Physiological sterility exists in a couple who have contracted marriage before or after the reproductive age.
- **Pathological:**
  - ➢ Faulty male factors responsible for 25% of the cases.
  - ➢ Faulty female factors responsible for 50% of the cases.
  - ➢ Faulty combined factors responsible for another 25% of the cases.
- In about 10% of the cases, no obvious abnormality can be found to explain the exact cause of infertility even when current diagnostic facilities such as endoscopy, endocrine assays are available.

### Female factors of infertility:

1. **Systemic factors:** Age over 35 years, obesity. May women conceive easily with pulmonary tuberculosis, severe anemia in India.
2. **Psychological factors:** Fear of performing sexual intercourse, marital disharmony, work through tubal spasm and infrequent sexual intercourse
3. **Endocrinopathy:** Thyroid disorders, hypogonadotrophic amenorrhoea, metropathic bleeding, PCOD
4. **Immunological incompatibility:** Agglutinating antibodies against sperm present in cervical mucus or in woman's serum. ABO antigen may agglutinate in cervical mucus.
5. **Genital factors:**
   - a. **Vaginal factors** – 2% of the cases, e.g. narrow vaginal orifice, vaginismus, vaginitis, vaginal atresia or stenosis, escape of semen after coitus (fluor seminis)
   - b. **Cervical factors** – 20% of the cases
     - i. **Hormonal** – good oestrogen effect causes positive fern test and formation of spinnbarkeit.
     - ii. **Anatomical defect** – elongation, intracervical obstruction, cervical scarring
     - iii. **Cervicitis** – with poor mucus and pus cells due to pyogenic or tubercular infection
     - iv. **Neoplastic** – cervical polyp
     - v. **Immunological** – sperm agglutinating antibodies in cervical mucus or woman's serum may hamper sperm motility
   - c. **Uterine factors** – 10% of the cases – uterine fibromyoma, adenomyosis, uterine hyperplasia, infantile uterus, tubercular endometritis
   - d. **Tubal factors** – 10-40% of the cases, tubal occlusions or peritubal adhesions caused by gonococcal, pyogenic, tubercular or chlamydial infections
   - e. **Ovarian factors** – 5% of the cases caused by anovulation. Hyperprolactinemia and hypothyroidism are the probable causes of female infertility.
   - f. **Peritoneal factors** – peritubal adhesion, pelvic endometriosis

**Combined male and female factors:** Most infertility problems will arise due to

1. Inadequate sperm production
2. Failure of ovulation
3. Abnormalities in female reproductive tract

### Secondary infertility factors:

- Ageing
- Obesity
- **Endocrinopathy:** Thyroid disturbances, metropathia, Sheehan's syndrome
- Vaginal stenosis, cervical stenosis, prolapse, endometrial tuberculosis
- Uterine fibroid
- Ovarian tumours
- Pelvic endometriosis
- Posttubal sterilisation

### Investigation of infertility:

When to investigate? 90% of the women conceive by 18 months of sexual exposure without contraception. Therefore, investigation is performed when

- Woman below 25 years remains infertile after 2 years of normal sexual life
- Woman of 25 to 35 years remains infertile after 1 year of normal sexual life
- Woman of above 35 years remains infertile after 6 months of normal sexual life

For those who are unnecessarily worried before adequate period of sexual exposure, clinical examination of the couple and assurance with explanation of physiology of conception are all that are necessary. Women with severe heart disease, chronic kidney disease, severe hypertension and diabetes mellitus should be examined accurately and they should be discouraged to conceive unless opinion of physician is taken.

### Duration of investigations:

A thorough diagnostic workup should identify one or more causes of infertility in about 90% of the couples.

The investigations should be completed within 2 years through several consultations.

### Investigation of infertility includes 7 steps

1. **Step 1:** Clinical history of both husband and wife, proper evaluation including physical examination, examination of private parts of the couple
2. **Step 2:** Semen analysis of the husband: The husband goes to a standard laboratory after 3 days of abstinence, ejaculates in wide mouth jar on masturbation or brings within 2 hours to laboratory on collecting withdrawal specimen of semen without using the condom in a wide mouthed jar. Semen is examined after ½ an hour of collection on liquefaction.

   **Routine testing of wife:** Blood Hb, ABO Rh, VDRL, PPBS and urine analysis

   **Routine testing of husband:** ABO Rh, VDRL, PPBS, urine analysis
3. **Step 3:** Cervical dilatation and curettage (D and C) under local or general anesthesia. This is performed during 18-21st day of menstrual cycle to remove intracervical obstruction; to identify secretory endometrium and to exclude endometrial tuberculosis.
4. **Step 4: Tubal patency tests:** Hysterosalpingography (HSG): This is done after 6 months of D and C, if no pregnancy occurs. This is done on radiographic table within a week following end of menses by introducing water soluble radio opaque dye into the uterine cavity through a canula. This helps in identifying tubal patency, tubal luminal block and hydrosalpinx.
5. **Step 5: Ovulation tests:** These are done after 6 months of HSG. Ni direct procedure is available. Urine pregnancy test is the surest proof.

   **Basal Body Temperature (BBT) test:** Oral temperature is recorded for one minute continuously in a graph or table for 3-4 cycles starting from the first day of menstruation. She takes oral temperature by a clinical thermometer on waking before micturition.

   - **Ovulatory BBT** is biphasic sharp drop of 0.5°F temperature followed by sustained rise by 1°F during luteal phase.
   - **Anovulatory BBT** – monophasic BBT with no rise of temperature during the luteal phase of menstrual cycle.
6. **Step 6: Tests for cervical factors:**

   - **Fern test:** of cervical mucus is an indirect evidence of ovulation showing palm leaf or fern like pattern of cervical mucus under microscope when mucus is dried on a slide. This results from crystallisation of sodium chloride with mucus due to oestrogen effect. Cervical mucus is collected from cervical canal by uterine dressing forceps. Mucus is smeared on a glass slide (washed with distilled water) and dried for 15 minutes and examined under high or low power microscope.
     - Ferning of cervical mucus starts at 5th or 6th day of menstrual cycle, becomes maximum 24-48 hours before ovulation and is replaced by beaded cellular pattern under progesterone effect 24-72 hours after ovulation and is absent completely after 22nd day of cycle. Therefore, presence of ferning by 22nd day indicates anovulation.
   - **Spinnbarkeit (Thread test, Rheology test):** Ovulation mucus has the property of elasticity and withstands stretching into a thread at least 6 cms. This is tested by pulling apart the cover slip placed on drop of cervical mucus (oestrogenic effect). Mucus becomes viscous, the threat fractures when put under tension during luteal phase.
7. **Step 7: Laparoscopic dye test:** is not routinely done. It is indicated in abnormal HSG findings and in cases where all above steps show normalcy.

   **Double puncture laparoscopy:** This is performed within a week after menstruation. Methylene blue dye is pushed through HSG canula into uterine cavity. Laparoscopy shows spillage of dye through fimbrial end or no spillage secondary to cornual block or spasm.

### Key summary of the chapter

- Sexual dysfunction and infertility are two different symptoms that can disturb the emotional or mental peace of the couple; each of which are having distinctive implications. Sexual dysfunction may disturb the couple only; whereas presenting complaint of infertility may disturb the couple in association with people who are associated with these couple and thus leading to the social disturbances too. Earlier, discussion in related to sexual dysfunction and infertility were considered to be a taboo, but now because of excess information available in the social media, internet and peer influences.
- **Male sexual function involves** intact libido (sexual desire), ability to achieve and maintain erection, ejaculation and orgasm and Detumescence.
- **Female sexual function involves** intact libido (sexual desire), sexual arousal due to environment and partner, vaso congestion and lubrication of vagina and external genitalia and orgasm.
- In case of male and female sexual dysfunction, any one or two or more of the categories of symptoms will be observed in the male or female which in turn disturb the couple. **Erectile dysfunction (ED)** is the most common male sexual

dysfunction noticed in males and in females, decreased sexual responsiveness (sexual desire/interest disorder, sexual arousal disorder, orgasmic disorder, vaginismus and dyspareunia) and increased sexual responsiveness (persistent genital arousal disorder) are observed.

- Infertility is defined as inability of the couple to have conception even after one year of unprotected sexual intercourse. There are two terms used in the field of infertility, infertility and sterility. Both literally mean inability to conceive after one year of sexual life without contraception when the couple are anxious to have progeny. Some distinguish the two terms with slight difference. Sterility refers to the absolute state of inability to conceive while infertility refers to the relative state of failure to conceive.
- Infertility can be physiological or pathological. Physiological infertility is seen in females before puberty, after menopause, during pregnancy and sometimes during lactation. This can be observed in a couple who have contracted marriage before or after the reproductive age. Whereas, pathological infertility is seen in males in 25% of the cases; in females in about 50% of the cases and in both genders in another 25% of the cases. Among 100% of the cases of infertility, 10% of the cases will have no obvious abnormality can be found to explain the exact cause of infertility even when current diagnostic facilities such as endoscopy, endocrine assays are available.
- While doing the investigations of infertility in a couple, first of all, investigation of male is being carried out. If semen analysis is showing significant abnormal changes, then investigation of female partner is suspended. Investigation of male partner involves 2 steps process, whereas investigation of the female partner involves 7 steps process in the evaluation of the infertility.

## MCQs

**1. Normal volume of semen is**

a. 0.5 to 3 ml; b. 2 to 5 ml;
c. 5 to 10 ml; d. 10 to 15 ml

*Answer:* (b)

**2. The term dyspareunia refers to pain observed during**

a. Menstruation;
b. Sexual intercourse;
c. Unrelated to menstruation;
d. Menopause

*Answer:* (b)

**3. Prostatic fluid contains which of the following?**

a. Glucose; b. Lactose;
c. Fructose; d. Galactose

*Answer:* (c)

**4. Fertilisation of zygote occurs in which of the following part of the female reproductive system?**

a. Vulva; b. Vagina;
c. Uterus; d. Uterine tube

*Answer:* (d)

**5. D and C (dilatation and curettage) is performed during ..........days of menstrual cycle.**

a. 10 to 12th day; b. 22 to 25th day;
c. During menstruation; d. 18 to 21st day

*Answer:* (d)

**6. To perform Fern test, mucus of which of the following part is used?**

a. Vagina; b. Uterine cavity;
c. Fallopian tube; d. Cervix

*Answer:* (d)

**7. In basal body temperature test, temperature of the patient is taken**

a. Before micturition;
b. After micturition;
c. Before defaecation;
d. No such time period is specified

*Answer:* (a)

**8. Laparoscopic dye test is done in which step of evaluation of female infertility?**

a. Step 2; b. Step 6;
c. Step 7; Step 1

*Answer:* (c)

**9. The part involved in hypogonadotropic amenorrhea is**

a. Thyroid gland; b. Ovary;
c. Adrenal gland; d. Pituitary gland

*Answer:* (d)

**10. The term oligozoospermia refers to the sperm count less than**

a. 200 millions/ ml; b. 50 millions/ ml;
c. 5 millions/ ml; d. 10 millions/ ml

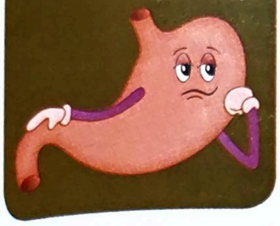
*Answer:* (d)

## Chapter resources

- https://psychicare.com/sexual-dysfunction/
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- C S Dawn. Undergraduate and postgraduate textbook of gynaecology and contraception, 13th edition, Dawn Books, Calcutta, 1999.

***

# CHAPTER
# 50



# Unmada and Apasmara

**Learning Objectives**

- ⇨ To understand the concept of Unmada and Apasmara
- ⇨ To know the Nirukti of Unmada and Apasmara
- ⇨ To understand the Nidana and Samprapti of Unmada mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To enlist the Bheda (types) of Unmada and Apasmara
- ⇨ To know the Samanya Lakshana of Unmada and Apasmara

## Introduction

This is a disease of *Manovaha Srotas* where the person will have abnormal functioning of the Satva or *Manas* (mind). In this disease, along with *Sharirika Dosha* involvement, there will be the affliction of *Rajas Dosha* is involved. The involvement of *Rajas Dosha* implies the unsteadiness of the clinical symptoms of *Unmada*. Whenever, we speak of psychological activities, first of all it starts with a mindset which leads to a particular thought process which leads to a peculiar feeling pertaining to that particular thought process which in turn leads to a specific type of action. If the individual is repeating similar type of action, that will lead to a particular result which in turn determines one's destiny. If any individual wants to work on development of one's destiny, he should work on training one's mindset. If any of the above said parameters are not met, then the person may show abnormal behaviours. If the person is suffering from *Unmada*, the abnormal pattern of activities can be observed either in mindset or in thought or in feeling or in action or in result which in turn alters one's destiny. In the coming pages, we are going to discuss the extent of meaning of *Unmada*.

## Nirukti of Unmada

**मदयन्त्युद्धता दोषा यस्मादुन्मार्गमाश्रिताः।**
**मानसोऽयमतो व्याधिरुन्माद इति कीर्तितः॥3॥** Su.Ut. – 62/3

- When aggravated *Dosha* takes upward movement and take shelter in *Manovaha Srotas* to cause disturbance in the *Manas*. That is the reason, this disease is termed as *Unmada*.

### Pratyatma Lakshana (cardinal feature)

**उन्मादं पुनर्मनोबुद्धिसंज्ञाज्ञानस्मृतिभक्तिशील चेष्टाचारविभ्रमं विद्यात्॥5॥** Ca.Ni. – 7/5

*Pratyatma Lakshana* of *Unmada* include

- **Mano Vibhrama**[1] – perversion of mind
- **Buddhi Vibhrama**[2] – perversion of intellect

---

**GK**

[1] **अत्र मनोविभ्रमात् चिन्त्यानर्थान्त्र चिन्तयते, अचिन्त्यांश्च चिन्तयते।** Ca.Ni. – 7/5, Chakra
When an individual is supposed to think in a particular situation, if he is not thinking in that particular fashion and if an individual is performing the activities and if he is unable to do the activities as per his wish can be considered as Mano Vibhrama. For example, the farmer by profession, if he is thinking in terms of construction of different houses avoiding the thought processes related to ploughing or crop preservation or cutting the grown crops etc. A doctor by profession, if he thinks of profession of a lawyer avoiding case history taking, physical examination or appropriate management of the diseased individual, then such kind of thought process is termed as Mano Vibhrama.

[2] **बुद्धिविभ्रमात्तु नित्यमनित्यमिति, प्रियं चाप्रियमिति पश्यति। विषमाभिनिवेशो यो नित्यानित्ये प्रियाप्रिये। ज्ञेयः स बुद्धिविभ्रंशः, .....** Ca.Ni. – 7/5, Chakra
When an individual is suffering from Buddhi Vibhramsha, he is unable to identify which is good or bad or which is pleasing or unpleasing. For example, an individual is holding the knife and if he is unable to identify its use, then such type of state is termed as Buddhi Vibhramsha.

- **Samjna Vibhrama** – perversion of consciousness
- **Jnana Vibhrama**[3] – perversion of knowledge
- **Smriti Vibhrama**[4] – perversion of memory
- **Bhakti Vibhrama**[5] – perversion of desire
- **Shila Vibhrama**[6] – perversion of manner or patterns
- **Cheshta Vibhrama**[7] – perversion of behaviour
- **Achara Vibhrama**[8] – perversion of conduct

## Nidana of Unmada

**विरुद्धदुष्टाशुचिभोजनानि प्रधर्षणं देवगुरुद्विजानाम्।**
**उन्मादहेतुर्भयहर्षपूर्वो मनोऽभिघातो विषमाश्च चेष्टाः॥4॥** Ca.Ci. – 9/4

- **Viruddha Bhojana** – consumption of incompatible food substances
- **Dushta Bhojana** – consumption of spoilt food substances
- **Ashuchi Bhojana**[9] – consumption of unclean food substances
- **Deva, Guru, Dvija Pragharshana**[10] – showing disrespect to heavenly bodies or Gods, preceptors or teachers or twice born
- **Mano Abhighata due to Bhaya**[11] – affliction of mind due to sudden emotion like fear
- **Mano Abhighata due to Harsha**[12] – affliction of mind due to sudden joy
- **Mano Abhighata due to Vishama Cheshta**[13] – affliction of mind due to violent physical activities

## Samprapti of Unmada

**तैरल्पसत्त्वस्य मलाः प्रदुष्टा बुद्धेर्निवासं हृदयं प्रदूष्य।**
**स्त्रोतांस्यधिष्ठाय मनोवहानि प्रमोहयन्त्याशु नरस्य चेतः॥5॥**
Ca.Ci. – 9/5

- When the people are having poor mental strength, there is vitiation of *Dosha*
- Vitiated *Dosha* get invade the *Hridaya*, the seat of *Manas*, get lodged in all the channels of *Manas*

---

A person who is holding the pen, in stead of using it for writing, if he uses for purposes other than writing, then that may suggest Buddhi Vibhrama. Ca.Ni. – 7/5, Chakra

[3] **संज्ञां ज्ञानं, तद्विभ्रमात् अग्न्यादिदाहं न बुद्ध्यते, किंवा संज्ञां नामोल्लेखेन ज्ञानम्।**
When an individual is having Sanjna and Jnana Vibhrama, then he is not in position to perceive the burning sensation which develops when he reaches near the fire or the person is unable to name Agni (fire). After seeing the vegetables, he is not in a position to identify the vegetable or unable to say its usage. Ca.Ni. – 7/5, Chakra

[4] **स्मृतिविभ्रमात्तु न स्मरति, अयथावद्वा स्मरति।**
In this situation, the person is unable to remember what he has taken in the breakfast or he will have inability to remember the names of the near relatives or he will have inability to remember the date of birth or anniversary or he may have inability to perceive the smell of the rose etc. Ca.Ni. – 7/5, Chakra

[5] **भक्तिरिच्छा, तद्विभ्रमाच्च यत्रेच्छा पूर्वमासीत्तत्रानिच्छा भवति।**
The term Bhakti refers to desire or liking. For example, if an individual is very fond of children, in due course of time, if he dislikes children. If a woman is very fond of friendship, in due course of time, if he prefers to sit alone avoiding friends could be considered in the context of Bhakti Vibhrama. Ca.Ni. – 7/5, Chakra

[6] **शीलविभ्रमादक्रोधनः क्रोधनो भवति।**
The term Shila refers to repetitive activities or following a particular pattern. Textual example says if a person who is not getting anger and if he frequently getting irritated, then it can be considered as Shila Vibhrama. Further, if an individual frequently sits alone in crowded places without doing any activities can be another example. Ca.Ni. – 7/5, Chakra

[7] **चेष्टाविभ्रमादनुचित चेष्टो भवति।**
When an individual is getting scolding from a total stranger, getting anger could be a normal phenomenon. In stead, if he gets smile, it can be considered as Cheshta Vibhrama. If an individual is losing his dear ones, then sorrow is one of the natural reaction or response. In stead, if he starts laughing, then it can be considered as Cheshta Vibhrama. Ca.Ni. – 7/5, Chakra

[8] **आचारः शास्त्रशिक्षाकृतो व्यवहारः, तद्विभ्रमादशौचाद्याचरति।**
The term Achara refers to the activities or skills mentioned in the textbooks or learnt during learning days. If a farmer by profession, if he plants the seeds during the summer season or if an individual is computer engineer by profession, if he finds difficulty in operating in the computer can be the examples for Achara Vibhrama.

[9] All these aetiological factors need not cause disease manifestation in a single setting. It requires longer exposure to these aetiological factors. All these aetiological factors will lead to inflammation of the gastric and/ or intestinal mucosa. This will lead to poor nutrient absorption in terms of glucose, sodium, potassium, calcium ions. Disorientation or poor orientation of space and time can be considered as transient until an unless the person receives adequate electrolyte supplementation.

[10] Deva, Guru or Dvija are usually considered as mentors. When a person strongly believes mentors and follows what is said from the mentors. That knowledge helps oneself to move ahead in one's life very rapidly. If the people do not believe their mentors, then either person may have the illusion regarding his venture success.

[11] When an individual is repeatedly exposed to fearful situation or situation where he is exposed to continuous abusive language, then he may likely to go into a state of depression.

[12] When the child is pampered excessively in a single child family or wealthy family and he gets what he desired immediately, this may lead to a state of elated mood. He may start with abnormal tantrums when he is denied any of the desired things.

[13] When an individual is frequently attaining abnormal physical postures either due to self or attained by others for a longer period, then such a phenomenon may lead to affliction of psyche of the individual.

- This mechanism will bring about the derangement quickly

## Samprapti Ghataka

**Dosha :** *Rajas* dominant *Sharirika Dosha*

**Dushya :** *Rasa, Manas*

**Srotas :** *Rasavaha, Manovaha Srotas*

**Srotodushti Prakara :** *Sanga* and *Vimargagamana*

**Udbhava Sthana :** *Amashaya*

**Sanchara Sthana :** *Sarva Sharira*

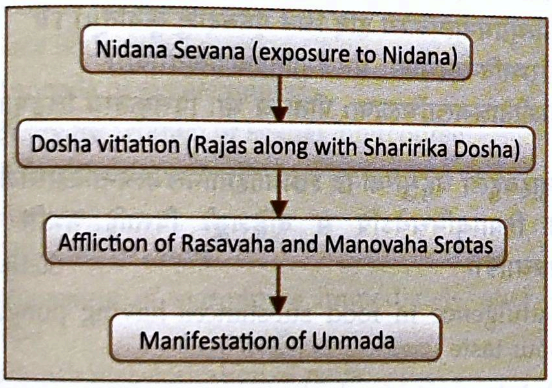
**Vyakta Sthana :** *Hridaya* (due to abnormal functioning of *Manas*)

**Vyadhi Prakara :** *Manasika*

**Vyadhi Svabhava :** *Ashukari* to *Chirakari*

**Sadhyasadhyata :** *Sadhya* to *Pratyakhyeya*

## Flowchart of Samprapti of the disease


Nidana Sevana (exposure to Nidana)
Dosha vitiation (Rajas along with Sharirika Dosha)
Affliction of Rasavaha and Manovaha Srotas
Manifestation of Unmada

## Purvarupa of Unmada

**मोहोद्वेगौ स्वनः श्रोत्रे गात्राणामपकर्षणम्।**
**अत्युत्साहोऽरुचिश्चान्ने स्वप्ने कलुषभोजनम्॥6॥**
**वायुनोन्मथनं चापि भ्रमश्च क्रमतस्तथा।**
**यस्य स्यादचिरेणैव उन्मादं सोऽधिगच्छति॥7॥** Su.Ut. – 62/6-7

**तस्येमानि पूर्वरूपाणि तद्यथाशिरसः शून्यता, चक्षुषोराकुलता, स्वनः कर्णयोः, उच्छ्वासस्याधिक्यम्, आस्यसंस्रवणम्, अनन्नाभिलाषारोचकाविपाकाः, हृद्ग्रहः, ध्यानायाससंमोहोद्वेगाश्चास्थाने, सततं लोमहर्षः, ज्वरश्चाभीक्ष्णम्, उन्मत्तचित्तत्वम्, - दर्दित्वम्, अर्दिताकृतिकरणं च व्याधेः, स्वप्ने चाभीक्ष्णं दर्शनं भ्रान्तचलितानवस्थितानां रूपाणामप्रश- स्तानां च तिलपीडकचक्राधिरोहणं वातकुण्डलिका- भिश्चन्मथनं निमज्जनं च कलुषाणामम्भसामावर्ते चक्षुषोश्चापसर्पणमिति (दोषनिमित्तानामुन्मादानां पूर्वरूपाणि भवन्ति)॥6॥** Ca.Ni. – 7/6

- **Moha** [14] – altered state of consciousness
- **Udvega**[15] – excitement
- **Karna Svana** [16] – ringing in the ears
- **Gatra Apakarshana**[17] – weakness of the body parts
- **Atyutsaha**[18] – excess enthusiasm
- **Aruchi** – tastelessness
- **Svapne Kalusha Bhojana**[19] – consumption of unclean food in dreams
- **Vayuna Unmathana**[20] – anxious look of the patient
- **Bhrama**[21] – giddiness

## Samanya Lakshana of Unmada[22]

**धीविभ्रमः सत्त्वपरिप्लवश्च पर्याकुला दृष्टिरधीरता च।**
**अबद्धवाक्त्वं हृदयं च शून्यं सामान्यमुन्मादगदस्य लिङ्गम्॥6॥** Ca.Ci. – 9/6

- **Dhi Vibhrama**[23] – improper understanding
- **Satva Pariplava**[24] – unsteadiness of mind

---

[14] This may be developed when the person is presented with head injury or cerbro vascular accidents or in brain tumours or in abnormalities of reticular activating system. This may be seen in electrolyte imbalances too. These conditions may affect mental function of the individual including memory or orientation of space and time or hallucinations or delusions and abnormal conduct.

[15] This is attributable to unstable mood elevation and he may show aggression or enlightenment even for a trivial reason.

[16] This can be attributable to auditory hallucinations. This can be considered as one of the features of schizophrenia.

[17] These Lakshana may appear when the individual is having poor nutrients in the body such as hyponatremia or hypokalemia or hypoglycemia or hypovolemia. This may lead to poor mental function.

[18] This can be attributable to elated mood or mood elevation where the person shows enthusiasm in beginning the activities.

[19] This Lakshana is difficult to interpret.

[20] This is attributable to anxiety state of the individual. This can be identified by frequent occurrence of pursed lip breathing.

[21] Hyperventilation is the most probable cause of giddiness. This phenomenon is observed when he is having excessive anxiety.

[22] T Harv Eker says a formula TFAR. Where T refers to Thought; F refers to Feeling; A refers to Action and R refers to Result. For any action to occur, there should be a thought process to be developed in an individual. This thought process should have certain emotion so that appropriate action can be taken which may lead to certain kind of result. If one wants to have desired result, he should have that thought process which helps oneself to attain the desired result. If we develop the same kind of result again and again decides one's destiny.
We can modify this formula into MTFARD where M refers to Mindset and D refers to Destiny.
This formula implies one's destiny is determined by the nature of one's mindset. The desired mindset can be achieved by controlling one's subconscious mind which is 9 times more powerful than conscious mind. If any one or two or more of MTFARD is not aligned with one's core values, leads to the abnormal behavioural patterns which may be the features of Unmada.

[23] The person is unable to perceive the good and bad or true and false or right and wrong etc. In this, the person may have disorientation of space and time, memory disturbances and abnormal behaviour patterns.

[24] This is attributable to instability of mind. In other words, he cannot judge what is right and wrong for him. His decisions are influenced by

- **Paryakula Drishti**[25] – In coordination of sight
- **Adhirata** [26] – Feeling of fear
- **Abaddha Vaktva**[27] – Irrelevant and incomprehensible speech
- **Shunya Hridaya**[28] – Emptiness of heart or mind

## Sankhya Samprapti of Unmada

**5 types:**

1. *Vataja Unmada*
2. *Pittaja Unmada*
3. *Kaphaja Unmada*
4. *Sannipataja Unmada*
5. *Agantuja Unmada*

**As per Sushruta, 6 types of Unmada are mentioned**

1. *Vataja Unmada*
2. *Pittaja Unmada*
3. *Kaphaja Unmada*
4. *Sannipataja Unmada*
5. *Manasa Unmada*
6. *Vishaja Unmada*

## Vataja Unmada

**रुक्षाल्पशीतान्नविरेकधातुक्षयोपवासैरनिलोऽतिवृद्धः।**
**चिन्तादिजुष्टं हृदयं प्रदूष्य बुद्धिं स्मृतिं चाप्युपहन्ति शीघ्रम्॥9॥**
**अस्थानहासस्मितनृत्यगीत वागङ्गविक्षेपणरोदनानि।**
**पारुष्यकार्यारुणवर्णताश्चजीर्णे बलं चानिलजस्य रूपम्॥10॥**

Ca.Ci. – 9/8-10

**रुक्षच्छविः परुषवाग्धमनीततो वा श्वासातुरः कृशतनुः स्फुरिताङ्गसन्धिः।**
**आस्फोटयन्नटति गायति नृत्यशीलो विक्रोशति भ्रमति चाप्यनिल-**
**प्रकोपात्॥8॥**

Su.Ut. – 62/8

- Indulgence in food substances which are dry, scanty, cold
- Frequent purificatory procedure i.e. emesis and purgation
- Depletion of body tissues
- Fasting or starvation and other factors which vitiate *Vata Dosha*
- The psychological triggers such as worry etc in a person having weak *Manas* will bring about derangement of intellect and memory.

**Clinical features**

Clinical features of *Vataja Unmada* are as follow:

- Laughing at improper time and place
- Smiling at improper time and place
- Speaking at improper time and place
- Singing at improper time and place
- Dancing at improper time and place
- Making body movements at improper time and place
- Hardness or roughness of body parts
- Emaciation of the body
- Blackish red discolouration of the body
- Exacerbation of the symptoms after the digestion of food

## Pittaja Unmada Lakshana

**अजीर्णकल विदाह्यशीतै- भौज्यैश्चितं पित्तमुदीर्णवेगम्।**
**उन्मादमत्युग्रमनात्मकस्य हृदि श्रितं पूर्ववदाशु कुर्यात्॥11॥**
**अमर्षसंरम्भविनग्नभावाः संतर्जनातिद्रवणौष्ण्यरोषाः।**
**प्रच्छायशीतान्नजलाभिलाषाः पीता च भाः पित्तकृतस्य लिङ्गम्॥12॥**

Ca.Ci. – 9/11-12

**तृस्वेददाहबहुलो बहुभुग्विनिद्र श्छायाहिमानिलजलान्तविहारसेवी।**
**तीक्ष्णो हिमाम्बुनिचयेऽपि स वह्निशङ्की पित्ताहि नभसि पश्यति**
**तारकाश्च॥9॥**

Su.Ut. – 62/9

- Indulgence in food substances having pungent or sour taste
- Indulgence in food which cause heartburn
- Indulgence in food substances which are hot in nature
- This will lead to the vitiation of *Pitta* quickly, which the people who are not self controlled

**Clinical features**

Clinical features of *Pittaja Unmada* are

- Intolerance
- Uncontrollability
- Casting away the clothes and remaining naked
- Threatening others
- Running away
- Feeling of burning sensation
- Desiring shade, cold water and foods
- Yellowish discolouration of the body

---

[25] This is attributable to unsteady vision. In other words, his attention is varied and he cannot fix his attention to one particular object or thought process. Even his attention cannot be drawn by other individuals.

[26] This is attributable to lack of initiation to do any of the activities. He may have fear of various kinds (fear of rejection or fear of failure etc).

[27] This is attributable to either increased or decreased speech. It can be attributable to either non fluent or fluent speech. Non fluent speech indicates the involvement of motor area involvement of brain and fluent speech indicates the affliction of sensory area involvement. As per current understanding, speech faculty includes reading, writing, listening and speaking. In this situation, speaking part has to be considered.

[28] This can be attributable to the state of emotionlessness.

to *Smarana* (*Smriti*) or memory. In this disease, the person will be presented with loss of memory for a transient period of time. This is associated with vitiation of *Sharirika Dosha* along with involvement of *Tamo Dosha*. The clinical features mentioned in *Apasmara* are comparable to seizure attacks. A seizure is defined as the paroxysmal event due to abnormal, excessive, hypersynchronous discharges from an aggregate of central nervous system (CNS) neurons.

## Nirukti

स्मृतिर्भूतार्थविज्ञानमपश्च परिवर्जने।
अपस्मार इति प्रोक्तस्ततोऽयं व्याधिरन्तकृत्॥3॥ Su.Ut. – 61/3

As per *Sushruta*, in this disease, the person will lose the experience of past and knowledge of nature of things and kills the ailing person. In this definition, the term *Smriti* refers to the recollection of past events or objects. In this set of diseases, the person will be presented with loss of memory and this may lead to death. In other way, it can be explained as the one who lost the experience of past and knowledge of nature of things is known as *Apasmara* and it will kill an individual.

स्मृतेरपगमं प्राहुरपसारं भिषग्विदः।
तमः प्रवेशं बीभत्सचेष्टं धीसत्त्वसंप्लवात्॥3॥ Ca.Ci. – 10/3

अपस्मारं पुनः स्मृतिबुद्धिसत्त्वसंप्लवाद्बीभत्सचेमावस्थिकं तमः प्रवेशमाचक्षते॥5॥ Ca.Ni. – 8/5

As per *Caraka, Apasmara* is comprises of 3 major cardinal features.

- **Smriti, Buddhi and Satva Samprava** – there will be loss of memory, intellect
- **Bhibhatsa Cheshta** – appearance of froth through mouth and involuntary movements in the body
- **Avasthika Tamapravesha** – transient loss of consciousness
- **Vegavan (Chakrapani commentary)** – the symptoms appearing in episodes of above said clinical features

## Nidana of Apasmara

विभ्रान्तबहुदोषाणामहिताशुचिभोजनात्।
रजस्तमोभ्यां विहते सत्त्वे दोषावृते हृदि॥4॥
चिन्ताकामभयक्रोधशोकोद्वेगादिभिस्तथा।
मनस्यभिहते नृणामपस्मारः प्रवर्तते॥5॥ Ca.Ci. – 10/4-5

- **Vibhranta Bahudosha**[31] – *Dosha* aggravated by faulty and excessive use of sense organs
- **Ahita and Ashuchi Bhojana**[32] – excess consumption of incompatible and contaminated food substances
- **Rajastamobhyam Vihata Satva**[33] – mind overpowered by *Manasa Dosha* i.e. *Rajas* and *Tamas*
- **Chinta, Kama, Bhaya, Krodha, Shoka and Udvega**[34] – excess exposure to worry, lust, fear, anger, grief and anxiety

मिथ्यातियोगीन्द्रियार्थकर्मणामभिसेवनात्।
विरुद्धमलिनाहारविहारकुपितैर्मलैः॥4॥

वेगनिग्रहशीलानामहिताशुचिभोजिनाम्।

---

GK

2. Brian tumour that compresses the area of the brain
3. Destroyed area of brain tissue
4. Congenitally deranged local circuitry

[31] If an individual is indulged in activities which lead to fear such as seeing or hearing crime stories or psychothriller stories etc frequently, that will create emotional lability which in turn activates amygdala. Amygdala is a structure which comprises of multiple small nuclei complex located immediately beneath the cerebral cortex of the medial anterior pole of each temporal lobe. This receives neuronal signals from all portions of limbic cortex as well as neocortex of the temporal, parietal and occipital lobes, especially from auditory and visual association areas. Effects initiated from amygdala will be sent through hypothalamus include

1. Increase or decrease in heart rate
2. Increase or decrease in arterial pressure
3. Increase or decrease in gastrointestinal motility and secretion
4. Defaecation or micturition
5. Pupillary dilatation or rarely constriction
6. Piloerection
7. Secretion of various anterior pituitary hormones

Apart from above said effects mediated through hypothalamus, it can also cause certain types of involuntary movement.

1. Tonic movements, such as raising the head or bending the body
2. Circling movements
3. Occasional clonic, rhythmic movements
4. Different types of movements associated with olfaction and eating, such as licking, chewing and swallowing.

[32] When an individual is consuming incompatible and contaminated food substances, the immediate response could be the person may develop either vomiting or diarrhoea associated with gastrointestinal symptoms manifestation. This will lead to abrupt nutrient loss, carbohydrates in particular which leads to the excess formation of ketoacidosis and lactic acidosis. This state is called as metabolic acidosis. This may lead to the state of respiratory alkalosis. Respiratory alkalosis is one of the predisposing factor for the development of seizure attacks. S.N. : Respiratory alkalosis is caused by either hypoxia or metabolic acidosis or increased metabolic demand such as fever etc.

[33] Rajas and Tamas are considered as two Manodoshas which are responsible for multiple Manasika Vikara. Anger, irritability etc will cause the vitiation of Rajo Dosha and sorrow, grief etc will cause the vitiation of Tamo Dosha. This may lead to emotional lability or extreme emotional disturbances and these may lead to the precipitation of epileptic attacks.

[34] These are extreme emotional disturbances which may induce episodes of epilepsy.

## Kaphaja Unmada Lakshana

संपूरणैर्मन्दविचेष्टितस्य छर्दिश्च लाला च बलं च भुङ्क्ते सोष्मा कफो मर्मणि संप्रवृद्धः।
बुद्धिं स्मृतिं चाप्युपहत्य चित्तं प्रमोहयन् संजनयेद्विकारम्॥13॥
वाक्चेष्टितं मन्दमरोचकश्च नारीविविक्तप्रियताऽतिनिद्रा।
नखादिशौक्ल्यं च कफात्मकस्य॥14॥
Ca.Ci. – 9/13-14

छर्द्यग्निसादसदनारुचिकासयुक्तो योषिद्विवितरतिरल्पमतिप्रचारः।
निद्रापरोऽल्पकथनोऽल्पभुगुष्णसेवी रात्रौ भृशं भवति चापि कफप्रकोपात्॥10॥
Su.Ut. – 62/10

- Indulgence in food intake- over eating
- Lack of physical exercise
- Derangement of the intellect and memory leading to *Kaphaja Unmada*

### Clinical features

Clinical features of *Kaphaja Unmada* are

- Weak or slow voice
- Weak or slow talk
- Slow body movements
- Anorexia or tastelessness
- Desire for women or sexual intercourse
- Excess sleep
- Vomiting
- Dribbling of saliva
- Worsening of symptoms immediately after taking food
- Whitish discolouration of nails

## Sannipataja Unmada

यः सन्निपातप्रभवोऽतिघोरः सर्वैः समस्तैः स च हेतुभिः स्यात्।
सर्वाणि रूपाणि बिभर्ति ताहविरुद्ध भैषज्यविधिर्विवर्ज्यः॥15॥
Ca.Ci. – 9/15

सर्वात्मके पवनपित्तकफा यथास्वं संहर्षिता इव च लिङ्गमुदीरयन्ति॥11॥
Su.Ut. – 62/10

- This type of *Unmada* is manifested by the vitiation of all three *Dosha* by the vitiation of *Dosha* by respective causes.
- The clinical features of all the *Dosha* are seen in the patient and requires treatment of different kinds.
- This condition should be rejected to be treated by the physicians or clinicians.

## Agantuja Unmada

देवर्षिगन्धर्वपिशाचयक्षरक्षः पितृणामभिधर्षणानि।
आगन्तुहेतुर्नियमत्रतादिमिथ्याकृतं कर्म च पूर्वदेहे॥16॥ Ca.Ci. – 9/16

- The term *Agantuja Unmada*[29] refers to the manifestation of *Unmada* due to external causes. Due to the curse of *Deva, Rshi, Gandharva, Pischacha, Yaksha, Raksha, Pitr* are responsible for the manifestation of *Unmada*.

त्रिविधं तु खलून्मादकराणां भूतानामुन्मादने प्रयोजनं भवति;
तद्यथा - हिंसा, रतिः, अभ्यर्चनं चेति॥ Ca.Ni. – 7/15

*Himsa, Rati* and *Abhyarchana* are three forms of reactions observed in *Agantuja Unmada. Abhyarchana* type of reaction is seen in *Satva Pradhana Unmada* such as *Pitr Unmada* or *Deva Unmada*. In this type of reflection, the suffering individual will show continuous, excessive devotion or worshipping to one particular diety or object. *Rati* type of reaction is seen in *Vataja* or *Rajo* dominant *Unmada* such as *Gandharva* or *Yaksha Unmada*. In this type of reflection, we can find excess, uncontrollable desire to one particular object. Sometimes, this type of behaviour is irritating to the individuals too. *Himsa* type of reaction is seen in *Kapha* or *Tamo* dominant *Unmada* such as *Raksha* or *Rakshasa* or *Pischacha Unmada*. This type of reflection is mainly identified by the attainment of pleasure by causing harm to other individuals.

## Introduction

*Apasmara*[30] comprises of two words – *Apa* and *Smara*. Here, the term *Apa* refers to loss or elimination and *Smara* refers

---

G K

[29] To understand the exact meaning of this type of Unmada, one has to have a thorough knowledge of Manasa types of Prakriti and subtypes of Manasa Prakriti, Sathvika, Rajasika and Tamasika Prakriti.

[30] This disease is associated with loss of consciousness and memory for a considerable period of time. As far as Pratyatma Lakshana of Apasmara is concerned, most of the features mentioned in Apasmara mimics the features of grand mal epilepsy. The factors which increase the excitability of abnormal epileptogenic circuitry enough to induce the seizures or epileptic attacks include

1. Strong emotional stimuli
2. Alkalosis caused by overbreathing
3. Drugs
4. Fever
5. Loud noises or flashing lights

Petit mal epilepsy is a minor form of epilepsy involves thalamocortical brain activating system. It is usually characterised by 3 to 30 seconds of unconsciousness, during which the person may have twitch like contractions of the muscles in the lead region, particularly blinking of the eyes and it is followed by return of consciousness and resumption of physical activities. The patient may have one such attack in many months or in rare instances, may have rapid series of attacks one after the other. The usual course for petit mal epilepsy to appear first during late childhood and then to disappear by the age of 30 years. On occasion, a petit mal epileptic attack can predispose the grand mal epilepsy.

Focal epilepsy can involve almost any local part of the brain, either localised regions of the cerebral cortex or deeper structures of both cerebrum and brain stem. The probable causes of focal epilepsy are as follow:

1. Scar tissue in the brain stem that pulls on the adjacent neuronal tissue

रजस्तमोभिभूतानां गच्छतां च रजखलाम्॥5॥
तथा कामभयोद्वेगक्रोधशोकादिभिर्भृशम्।
चेतस्युपहते पुंसामपस्मारोऽभिजायते॥6॥
Su.Ut. – 61/4-6

- **Mithyatiyoga of Indriyartha and Karma**[35] – improper or excessive use of sense organs and physical, mental and verbal activities
- **Viruddha Ahara and Vihara** – consumption of incompatible food and activities
- **Malina Ahara and Vihara**[36] – consumption of unclean food and activities
- **Vega Nigraha**[37] – suppression of natural urges
- **Ahita Bhojana** – consumption of unhealthy food substances
- **Ashuchi Bhojana**[38] – consumption of contaminated food substances
- **Raja Tamo Abhibhutanam** – affliction of mind with *Raja* and *Tamo Dosha*
- **Rajasvalam Cha Gacchatam**[39] – sexual intercourse with women during menstruation
- **Kama, Bhaya, Udvega, Krodha and Shoka etc**[40] – during the state of lust, fear, excitement, anger and grief etc

त एवंविधानां प्राणभृतां क्षिप्रमभिनिर्वर्तन्ते; तद्यथा - रजस्तमोभ्यामुपहतचेतसामुद्रान्तविषम- दोषाणां समल- विकृतोपहितान्यशुचीन्यभ्यवहार- जातानि वैपम्ययुक्ते-नोपयोगविधिनोपयुञ्जानानां तन्त्रप्रयोगमपि च विषममाचरतामन्याश्च शरीर- चेष्टा विषमाः समाचरतामत्युपक्षयादा दोषाः प्रकुपिता रजस्तमोभ्यामुपहतचेतसामन्तरात्मनः श्रेष्ठ- तममायतनं हृदयमुपसृत्योपरि तिष्ठन्ते तथेन्द्रिया- यतनानि च।
तत्र चावस्थिताः सन्तो यदा हृदय- मिन्द्रियायतनानि चेरिताः कामक्रोधभयलोभमोह- हर्षशोकचिन्तोद्वेगादिभिः सहसाऽभिपूरयन्ति, तदा जन्तुरपस्मरति॥4॥
Ca.Ni. – 8/4

- The people whose mind is afflicted by vititated *Rajas* and *Tamas Dosha*
- Who have scattered, abnormal and plenty of *Dosha*
- The people who don't follow application of rules and regulations of diet
- The people who don't follow *Tantric* practices properly
- Abnormal body postures
- Excess depletion of body tissues
- Due to above said reasons, the *Dosha* get vitiated and *Rajas* and *Tamas Dosha* get vitiated and spread over *Hridaya*, the best seat of inner self and also to other seats of sense organs and stay there predominantly while residing there when they are excited by passion, anger, fear, greed, confusion, exhilaration, grief, anxiety, agitation etc and fill up *Hridaya* and seats of sense organ as a result the person gets bouts of *Apasmara*.

## Samprapti

धमनीभिः श्रिता दोषा हृदयं पीडयन्ति हि।
संपीड्यमानो व्यथते मूढो भ्रान्तेन चेतसा॥6॥
Ca.Ci. – 10/6

संज्ञावहेषु स्त्रोतःसु दोषव्याप्तेषु मानवः।
रजस्तमः परीतेषु मूढो भ्रान्तेन चेतसा॥8॥
विक्षिपन् हस्तपादौ च विजिह्मभ्रूविलोचनः।
दन्तान् खादन् वमन् फेनं विवृताक्षः पतेत् क्षितौ॥9॥
अल्पकालान्तरं चापि पुनः संज्ञां लभेत सः।
सोऽपस्मार इति प्रोक्तः
Su.Ut. – 61/8-10

- Due to exposure to etiological factors, *Dosha* (*Sharirika* as well as *Manasika*) become vitiated, *Tamo Dosha* in particular
- These vitiated *Dosha* reach *Samjnavaha Srotas* via *Dhamani* and manifest *Apasmara*.
- Due to this pathological mechanism, the person will be presented with stupor, malfunctioning of mental activities due to involvement of *Rajas* and *Tamas*

---

[35] Loud noises or flashing lights are considered to be responsible for occurrence of grand mal epilepsy.

[36] When an individual is consuming incompatible and contaminated food substances, the immediate response could be the person may develop either vomiting or diarrhoea associated with gastrointestinal symptoms manifestation. This will lead to abrupt nutrient loss, carbohydrates in particular which leads to the excess formation of ketoacidosis and lactic acidosis. This state is called as metabolic acidosis. This may lead to the state of respiratory alkalosis. Respiratory alkalosis is one of the predisposing factor for the development of seizure attacks.
S.N. : Respiratory alkalosis is caused by either hypoxia or metabolic acidosis or increased metabolic demand such as fever etc.

[37] While discussing this point, let us take the example of Purisha Vega Dharana (suppression of urge of defecation). When the person frequently suppressing the urge of defecation, that may lead to hard faecal matter (faecolith or scybala). When the person gets the next urge of defaecation, that will lead to the development of mechanism of respiratory alkalosis secondary to overventilation. This respiratory alkalosis may be the triggering factor for the development of seizure attacks in the susceptible individuals.

[38] These improper method of food intake will lead to poor digestion and absorption from the alimentary canal. When an individual is consuming incompatible and contaminated food substances, the immediate response could be the person may develop either vomiting or diarrhoea associated with gastrointestinal symptoms manifestation. This will lead to abrupt nutrient loss, carbohydrates in particular which leads to the excess formation of ketoacidosis and lactic acidosis. This state is called as metabolic acidosis. This may lead to the state of respiratory alkalosis. Respiratory alkalosis is one of the predisposing factor for the development of seizure attacks.
S.N. : Respiratory alkalosis is caused by either hypoxia or metabolic acidosis or increased metabolic demand such as fever etc.

[39] Sexual intercourse with menstruating woman may be a risk factor the development of seizure attacks. This may happen because of two reasons. Either there may be respiratory alkalosis or there may be appearance of fever in the patient. The persons who are having the history of grand mal epilepsy, this may trigger the episode of seizure attacks.

[40] All these activities will lead to extreme emotional stimuli which are the triggering factors of grand mal epilepsy.

- Thus, leading to violent movements of the arms, legs, brows, eyes; grinding of the teeth, froth comes out of the mouth, the person will see non-existant things, excessive salivation, falls on the ground with eyes open and regain consciousness after a bouts of convulsant attacks as if from the sleep.

## Purvarupa[41]

तस्येमानि पूर्वरूपाणि भवन्ति तद्यथा - भृव्यु- दासः सततमक्ष्णोर्वैकृतमशब्दश्रवणं लालासिङ्घाण- प्रस्त्रवणमनन्नाभिलषण- मरोचकाविपाको हृदयग्रहः कुक्षेराटोपो दौर्बल्यमस्थिभेदोऽङ्गमद मोहस्तमसो दर्शनं मूर्च्छा भ्रमश्चाभीक्ष्णं स्वप्ने च मदनर्तनव्यध- नव्यथनवेपनपतनादीनीति॥6॥

Ca.Ni. – 8/6

हृत्कम्पः शून्यता खेदो ध्यानं मूर्च्छा प्रमूढता।
निद्रानाशश्च तस्मिंस्तु भविष्यति भवन्त्यथ॥7॥

Su.Ut. – 61/7

- **Bhru Vyudasa –** contraction of eye brows
- **Satatam Akshorvikriti –** frequent abnormal movement of eyes
- **Ashabda Shravana –** hearing of non-existing sounds
- **Lala, Singhanaka Prasavana –** excessive salivary and nasal secretions
- **Anannabhilashana –** disinclination to take food
- **Arochaka –** tastelessness
- **Avipaka –** indigestion
- **Hridayagraha –** stiffness in the chest region
- **Kukshi Atopa –** distension of the abdomen
- **Daurbalya –** weakness
- **Asthibheda –** tearing type of pain in the bones
- **Angamarda –** bodyache
- **Moha –** altered state of consciousness
- **Tama Darshana –** darkness in front of the eyes
- **Murcha –** unconsciousness
- **Bhrama –** giddiness
- **Abhiksham Svapne Mardana, Vyadhana, Vyathana, Vepana, Patana etc –** dreams of narcosis, dancing, piercing, aching, shivering and falling

### As per Sushruta

- **Hritkampa –** tremors in the cardiac region
- **Shunyata –** feeling of vacantness
- **Sveda –** perspiration
- **Dhyana –** unusual thinking
- **Murcha –** unconsciousness
- **Pramudhata –** fainting or dullness
- **Nidranasha –** loss of sleep

## Classification of Apasmara

- **Sankhya Samprapti:** 4
  - *Vataja Apasmara*
  - *Pittaja Apasmara*
  - *Kaphaja Apasmara*
  - *Sannipataja Apasmara*

## Vataja Apasmara

वेपमानो दशेद्दन्तान् श्वसन् फेनं वमन्नपि॥11॥
यो ब्रूयाद्विकृतं सत्त्वं कृष्णं मामनुधावति।
ततो मे चित्तनाशः स्यात्सोऽपस्मारोऽनिलात्मकः॥

Su.Ut. – 61/11-12

तत्रेदमपस्मारविशेषविज्ञानं भवति तद्यथा- अभीक्ष्णम- पस्मरन्तं, क्षणेन संज्ञां प्रतिलभमानम्, उत्पिण्डिताक्षम् असाम्ना विलपन्तम्, उद्धमन्तं फेनम्, अतीवाध्मातग्रीवम्, आविद्धशिरस्कं, विषमविनताङ्गुलिम्, अनवस्थितपाणि- पादम्, अरुणपरूपश्यावनखनयनवदनत्वचम्, अनवस्थितचपल परूपरूक्षरूपदर्शिनं, वातलानुपशयं, विपरीतोपरायं च वातेनापस्मरन्तं विद्यात्॥ ( 1 )॥

Ca.Ni. – 8/8

- **Vepamana –** tremors
- **Dantan Dashet –** biting one's teeth
- **Shvasa –** breathlessness
- **Bruyat Vikrita Krishna Mamanudhavati –** patient utters black substances are running after him
- **Abhiksham Apasmara Kshanena Pratilabhamana Samjna –** frequent convulsions followed by regaining the consciousness instantaneously
- **Utpinditaksha –** protruded eyes
- **Asamna Vilapantam –** crying recklessly
- **Phena Udvamantam** - emitting froth from the mouth
- **Ativa Adhmata Griva –** excessive heaviness and rigidity of neck
- **Aviddha Shira –** bending of the head to one side
- **Vishama Vinatanguli –** irregularly contracted fingers
- **Anavasthita Panipada –** instability of hands and feet
- **Aruna, Parusha, Shyava Nakha, Nayana, Vadana and Tvak –** reddish, blackish and rough nails, eyes, face and skin
- **Anavasthita, Chapala, Parusha, Ruksha Rupadarshina –** frickle, coarse and dry objects
- **Vatala Anupashaya and Viparita Upashaya –** aggravation of the symptoms on consuming *Vata* provoking factors and relief of symptoms on consumption of *Vata* pacifying factors

---

G K

[41] As per current understanding, this stage is termed as aura. Aura may consists of sensory, autonomic or psychic sensations (e.g. parasthesias, a rising epigastric sensation, abnormal smells, a sensation of fear. For example, excessive salivary and nasal secretions, frequent abnormal movement of the eyes, indigestion, distension of the abdomen etc can be attributable to autonomic stimulation.

## Pittaja Apasmara

तृदतापखेदमूच्छत धुन्वन्नङ्गानि विह्वलः।
यो ब्रूयाद्विकृतं सत्त्वं पीतं मामनुधावति॥1 3॥
ततो मे चित्तनाशः स्यात्स पित्तभव उच्यते। Su.Ut. – 61/13-14
अभीक्ष्णमपस्मरन्तं, क्षेणेन संज्ञां प्रतिलभमानम्, अवकृजन्तम्, आस्फाल यन्तं भूमिं हरितहा- रिद्रताम्रनखनयनवदनत्वचं, रुधिरोक्षितोग्रभैरवा-दीप्तरूपित रूपदर्शिनं, पित्तलानुपशयं, विपरीतोपशयं च पित्तेनापस्मरन्तं विद्यात्॥ ( 2 )॥ Ca.Ni. – 8/8

- **Trit** – thirst
- **Daha** – burning sensation
- **Sveda** – sweating
- **Murcha** – unconsciousness
- **Dhunvan Angani Vihvala** – shaking of body parts
- **Bruyat Vikrita Pitam Mamanudhavati** – person says yellowish substances running after him
- **Abhiksham Apasmarantam Kshanena Samjnam Pratilabhamanam** – frequent fits regaining consciousness instantaneously
- **Avakujantam** – breathing with sounds
- **Asphalayantam Bhumi** – rubbing the earth
- **Harita, Haridra, Tamra, Nakha, Nayana, Vadana, Tvak** – greenish, yellowish and coppery discolouration of nails, eyes, face and skin
- **Rudhirokshitogra Bhairavadipta Rushita Rupa Darshina** – vision of reddish, agitated, fierce, luminous and irritated objects
- **Pittala Anupashaya, Viparita Upashaya** – signs and symptoms of *Apasmara* aggravated by the *Pitta* provoking factors and alleviated by *Pitta* facifying factors

## Kaphaja Apasmara

शीतहृल्लासनिद्रार्तः पतन् भूमौ वमन् कफम्॥1 4॥
यो ब्रूयाद्विकृतं सत्त्वं शुक्लं मामनुधावति।
ततो मे चित्तनाशः स्यात्सोऽपस्मारः कफात्मकः1 5 Su.Ut. – 61/14-15
चिरादपस्मरन्तं चिराच्च संज्ञां प्रतिलभमानं, पतन्तम्, अनति विकृतचेष्टं, लालामुद्रमन्तं, शुक्लनखनयनवदनत्वचं, शुक्लगुरुस्निग्धरूपदर्शिनं, ले मलानुपशयं, विपरीतोपशयं च लेप्मणाऽपरम- रन्तं विद्यात्॥( 3 )॥ Ca.Ni. – 8/8

- **Shita** – sense of coldness
- **Hrillasa** – nausea
- **Nidra** – sleep
- **Patan Bhumau** - *Vaman Kapham* – vomits mucus (*Kapha*) while falling on the ground
- **Bruyat Vikrita Shuklam Mamanudhavati** – patient says whitish substances are running after him
- **Chirat Apasmaranta, Chirat Samjnam Pratilabhamana** – person will have convulsions which are usually slow in the movement and he will have delayed recovery from unconsciousness
- **Patanta** – frequently falling down
- **Anativikrita Cheshta** – absence of much distorted activities
- **Lalam Udvamanta** – dribbling of saliva
- **Shukla Nakha, Nayana, Vadana, Tvak** – whitish discolouration of nails, eyes, face and skin
- **Shukla, Guru, Snigdha, Rupa Darshina** – vision of white, heavy and unctuous objects
- **Shleshmala Anupashaya, Viparita Upashaya** – worsening of the signs and symptoms on exposure to *Shleshma* provoking factors and alleviation on exposure to *Shleshma* pacifying factors

## Sannipataja Apasmara

सर्वलिङ्गसमवायः सर्वदोषप्रकोपजे। Su.Ut. – 61/17
समवेतसर्वलिङ्गमपस्मारं सान्निपातिकं विद्यात्, तमसाध्यमाचक्षते॥( 4 )॥ Ca.Ni. – 8/8

In *Sannipataja Apasmara,* mixed signs and symptoms mentioned in earlier *Dosha* dominant *Apasmara* are observed.

## Sadhyasadhyata of Apasmara

अपस्मारः स चासाध्यो यः क्षीणस्यानवश्च यः॥1 2॥
पक्षाद्वा द्वादशाहाद्वा मासाद्वा कुपिता मलाः।
अपस्माराय कुर्वन्ति वेगं किंचिदथान्तरम्॥1 3॥ Ca.Ci. – 10/12-13

In following conditions, *Apasmara* is *Asadhya* (incurable) in nature

- **Kshina**[42] – If the person suffering from *Apasmara* is very emaciated
- **Anava**[43] – If the duration of *Apasmara* is of longer duration
- **Pakshat, Dvadashahat and Masat Vegam Kurvanti**[44] – If the person is getting episode of *Apasmara* once in 12 days, 15 days or a month even though the episode persist for shorter duration

---

[42] When an individual suffers from Apasmara (epilepsy), there will be tonic and clonic seizures in parts of the body or in case of grand mal epilepsy, the symptoms are seen all over the body. This event is responsible for large amount of nutrient utilisation and large amount of heat is generated which further leads to the rapid depletion of nutrients including glucose and electrolytes. If the individual is emaciated, there already depletion of the nutrients in the body, if he is suffering from grand mal epilepsy, there is no nutrients to supplement the depleted energy from the body. That may be the reason, we can say such type of disease is considered as Asadhya.

[43] If the person is suffering from Apasmara which is of longer duration, it may either indicate the severity of the disease or it may suggest rapid nutrient depletion from the body or it may imply the extent of the lesion depending upon the appearance of the symptoms in the part of whole of the body.

[44] The recurrence of the symptoms may indicate the Vyabhichari Hetutva (dormancy of the morbid Dosha present inside the human body) of the Nidana in the disease manifestation. This indicates rapid nutrient loss from the body depending upon the part of the body afflicted.

## Key summary of the chapter

### Unmada

स्मृतेरपगमं प्राहुरपस्मारं भिषग्विदः। तमःप्रवेशं बीभत्सचेष्टं धीसत्वसंप्लवात्॥3॥ Ca.Ci. – 10/3

- When aggravated Dosha takes upward movement and take shelter in Manovaha Srotas to cause disturbance in the Manas. That is the reason, this disease is termed as Unmada.

### Pratyatma Lakshana of Unmada

उन्मादं पुनर्मनोबुद्धिसंज्ञाज्ञानस्मृतिभक्तिशीलचेष्टाचारविभ्रमं विद्यात्॥5॥ Ca.Ni. – 7/5

- Manas, Buddhi, Sanjnajnana, Smriti, Bhakti, Shila, Cheshtha and Achara Vibhrama (deviations in the pattern of person's thinking, feeling, action in above said parameters) are the hallmark of the disease Unmada.

### Samanya Lakshana of Unmada

धीविभ्रमः सत्त्वपरिप्लवश्चपर्याकुला दृष्टिरधीरता च। अबद्धवात्त्वं हृदयं च शून्यं सामान्यमुन्मादगदस्य लिङ्गम्॥6॥ Ca.Ci. – 9/6

- Dhi Vibhrama (improper understanding), Satva Pariplava (instability of the mind), Paryakula Drishti (unsteady gaze), Adhirata (feeling of fear), Abaddha Vaktva (irrelevant and incomprehensible speech) and Hridaya Shunyata (emptiness of the heart or mind) are the common Lakshana mentioned in the context of Unmada as per Charaka.
- As far as Sankhya Samprapti of Unmada is concerned, it is of 5 types – Vataja, Pittaja, Kaphaja, Sannipataja and Agantuja or Bhutaja Unmada.
- Himsa (causing harm to either self or others), Rati (excess desire) and Abhyarchana (worshipping) are three main reactions seen in the patients of Agantuja Unmada.

### Apasmara

स्मृतेरपगमं प्राहुरपस्मारं भिषग्विदः। तमःप्रवेशं बीभत्सचेष्टं धीसत्वसंप्लवात्॥3॥ Ca.Ci. – 10/3

- Apasmara is characterised by the clinical features of Apagama of Smriti (loss of memory), Tama Pravesha (darkness in front of the eyes or loss of consciousness) associated with Bhibhatsa Cheshta (involuntary movements of the body). As far the Dosha involvement is concerned, this is manifested due to the vitiation of Sharirika Dosha along with Tamo Dosha involvement. The clinical features of this spectrum of the diseases will mimic the features of seizure disorders.
- Sankhya Samprapti of Apasmara is of 4 types: 3 types of Doshaja Apasmara and one type of Sannipataja Apasmara.
- If an individual is suffering from Apasmara and he is having extreme emaciation and if the duration of the illness is prolonged and if the disease recurs for every 12 days or 15 days or 30 days, such type of Apasmara is considered as Asadhya in nature.

## MCQs

**1. Sankhya Samprapti of Unmada as per Charaka is**

a. 4; b. 5;
c. 6; d. 7

*Answer*: (b)

**2. Paryakula Drishti is the specific Lakshana seen in**

a. Apasmara;
b. Unmada;
c. Atatvabhinivesha;
d. Apatantraka

*Answer*: (b)

**3. Rahaskamata is the Lakshana of**

a. Vataja Unmada;
b. Kaphaja Unmada;
c. Pittaja Unmada;
d. Kaphaja Apasmara

*Answer*: (b)

**4. Svapne Kalusha Bhojana is the Purvarupa observed in**

a. Apasmara;
b. Atatvabhinivesha;
c. Unmada;
d. Arochaka

*Answer*: (c)

**5. As per Sushruta, the types of Unmada are**

a. 5; b. 6;
c. 4; d. 8

*Answer*: (b)

**6. Vishaja Unmada is the contribution of**

a. Charaka; b. Yoga Ratnakara;
c. Sushruta; d. Madhavakara

*Answer*: (c)

**7. Vigata Unmada Lakshana is/ are**

a. Buddhi Prasada; b. Mana Prasada;

c. Prakritistha Dhatu; d. All of the above

*Answer*: (d)

**8. Rati type of reflection is seen in which of the following type of Agantuja Unmada?**

a. Deva; b. Pitrija;

c. Pischacha; d. Gandharva

*Answer*: (d)

**9. Himsa type of reflection is seen in .............dominant Agantuja Unmada?**

a. Satva; b. Rajo Dosha dominant;

c. Tamo Dosha dominant d. Both c and d

*Answer*: (c)

**10. Dhi Vibhrama is .................of Unmada.**

a. Nidana; b. Purvarupa;

c. Pratyatma Lakshana; d. Upadrava

*Answer*: (c)

**11. Late returning of the sensation is the symptom of .......... Apasmara.**

a. Vataja; b. Pittaja;

c. Kaphaja; d. Sannipataja

*Answer*: (c)

**12. Smriterapadhvamsah is the Lakshana of**

a. Apasmara; b. Unmada;

c. Bhrama; d. Atatvabhinivesha

*Answer*: (a)

**13. Hrit Kampa Shunyata, Sveda, Dhyana, Murcha, Pramudhata and Nidranasha are the Purvarupa of**

a. Sanyasa; b. Apasmara;

c. Unmada; d. Atatvabhinivesha

*Answer*: (b)

**14. Which of the following is not the type of Apasmara?**

a. Vishaja Apasmara; b. Raktaja Apasmara;

c. Madyaja Apasmara; d. All of the above

*Answer*: (d)

**15. Olfactory hallucinations are seen in**

a. Delirium;

b. Ergot poisoning;

c. Temporal lobe epilepsy;

d. Schizhophrenia

*Answer*: (a)

**16. As per Charaka, the types of Apasmara mentioned are**

a. 3; b. 4;

c. 5; d. 7

*Answer*: (b)

**17. Visual hallucinations are seen in**

a. Delirium; b. Cocaine poisoning;

c. Schizhophrenia; d. None of the above

*Answer*: (a)

**18. Which of the following Dosha is dominant in the patient of Apasmara?**

a. Satva; b. Rajas;

c. Tamas; d. All of the above

*Answer*: (c)

**19. A patient of Apasmara gets an episode of Bhibhatsa Cheshta following anxiety. In this example, anxiety is termed as**

a. Sannikrishta Hetu; b. Viprakrishta Hetu;

c. Vyabhichari Hetu; d. Pradhanika Hetu

*Answer*: (c)

**20. Auditory hallucinations are common in**

a. Schizhophrenia; b. Ergo poison;

c. Dhatura poison; d. Temporal lobe epilepsy

*Answer*: (a)

## Chapter resources

- Charaka Samhita Nidana Sthana 7th chapter – Unmada Nidana
- Charaka Samhita Chikitsa Sthana – 9th chapter – Unmada Chikitsa Adhyaya
- Sushruta Samhita Uttara Tantra – 62nd chapter – Unmada Pratishedha Adhyaya
- Charaka Samhita, Nidana Sthana 8th chapter – Apasmara Nidana Adhyaya
- Charaka Samhita, Chikitsa Sthana 10th chapter – Apasmara Chikitsa Adhyaya
- Sushruta Samhita, Uttara Tantra 61st chapter – Apasmara Pratishedha Adhyaya
- Madhava Nidana – 21st chapter – Apasmara Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

51

# Vishada

## Learning Objectives

- ⇨ To know the concept of Vishada
- ⇨ To understand the current meaning of Vishada

### Introduction

Much description of *Vishada* is not available in *Ayurveda* literatures. This spectrum of disease involves *Manas* of the individual. As per T Harv Eker, popularly known as THE, a renowned entrepreneur and successful public speaker, for any kind of the activities, *TFAR* (thought, feeling, action and result) should align in proper way, then only right and appropriate action is possible, so that the person will have desired destiny. But, to have appropriate thought to come to one's mind, he should have a right mindset. In other words to say, one should have right mindset to achieve desired destiny which influences right thought, feeling, action and result which aligns the mindset and destiny. As per *Charaka*, *Vishada* is considered to be one of 80 types of *Vataja Nanatmaja Vikara*.

### Definitions of Vishada

**असिद्धिभयाद्विविधेषु कर्मसु सादोऽप्रवृत्तिः विषादः**
Su.Su. – 1/24, Dalhana

**विषादः अवसादः।**
**जाड्यं मौर्ख्यं विषादो अवसादः सादो विषण्णता इति हेमचन्द्रः।**
श.क.द्रु.

**सीदन्ति मम गात्राणि मुखं च परिशुष्यति ।**
**वेपथुश्च शरीरे मे रोमहर्षश्च जायते॥**
**गाण्डीवं स्रंसते हस्तात् त्वक्चैव परिदह्यते।**
**न च शक्नोम्यवस्थातुं भ्रमतीव च मे मनः॥** Bhagavadgita 1/ 29-30
**यथा वातक्षये उत्साहविरोधिनो विषादस्य वृद्धिः।** Ca.Su 18/52 Chakra
**तमसास्तु विषादित्वं ....॥** Su.Sha. – 1/18
**वाक्काय चित्तावसादो विषादः॥** Su.Ka. – 3/21, Dalhana
**विषादो रोगवर्धनानां ।** Ca.Su. – 25/40
**भयं विषादेन ।** Ca.Vi. – 4/8

The term *Vishada* means different meaning as per different *Ayurveda* textbooks. In the following pages, we are going to have an elaborate understanding on this term. As per *Dalhana*, *Vishada* is the term used when an individual is reluctant perform his routine or day today activities with fear of failure.

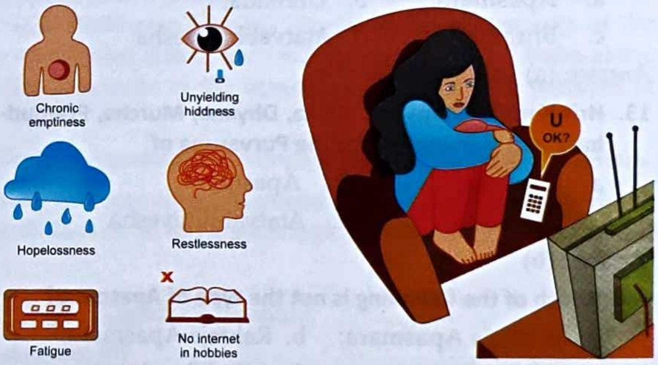


**Figure 218:** Lakshana of Vishada

These are the words of *Arjuna* to Lord *Krishna* in *Bhagavadgita* regarding *Vishada*. My limbs will give way, my mouth becomes dry, a shivering occurs in the whole body, horripulation occurs all over the body. My bow, *Gandiva* slips away from my hand, burning sensation occurs all over the body, my mind is whirling and I cannot stand for longer time.

As per *Chakrapani*, increase of *Vishada* is seen in decreased state of *Vata Dosha*. This refers to the increase of *Kapha Dosha* in the body.

According to *Dalhana*, *Vishada* is the term used when an individual is showing hampered activities in terms of physical, mental and vocal activities.

As per *Charaka*, *Vishada* is the condition which increases the risk of worsening of the diseases, if he is suffering from any of the trivial or life threatening condition.

*Vishada* can be assessed by the apperance of *Bhaya*[1] (fear) in an individual. The degree of *Vishada* can be analysed by the degree of appearance of fear in an individual.

## Synonyms of Vishada

*Jadya, Mourkhya, Avasada, Sada, Vishannata*

## Nidana of Vishada

मानसः पुनरिष्टस्य लाभालाभाचा निष्टस्योपजायते॥ Ca.Su. – 11/45

There is no direct reference regarding the exact causative factor for the manifestation of *Vishada*. But *Charaka Samhita* described in 11th chapter of *Sutra Sthana* mentioned general aetiological factor for the manifestation of any of the *Manasika* (psychological) disease or disorder. As per this verse, the main cause of any of the *Manasika Vikara* is obtaining the things which is not liked by that particular individual and not attaining the desires which he is badly liking for. In other words, frequently exposed to situations which he is not at all liking or strange or disgusting situations.

## Samprapti of Vishada

There is no direct reference of *Samprapti* of *Vishada*. It can be deduced by referring the description of *Hina Satva* assessment during the analysis of *Satva* of the individual.

हीनसत्त्वास्तु नात्मना नापि परैः सत्त्वबलं प्रति शक्यन्ते उपस्तम्भयितुं महाशरीरा ह्यपि ते खल्पानामपि वेदनानामसहा दृश्यन्ते, सन्निहितभय-शोकलोभमोहमाना रौद्र भैरवद्विष्टवीभत्सविकृतसं कथास्वपि च पशुपुरुष-मांसशोणितानि चावेक्ष्य विषादवैवर्ण्यमूर्च्छोन्मादभ्रम-प्रपतनानामन्यतममाशुवन्त्यथवा मरणमिति॥1 1 9॥ Ca.Vi, - 8/119

- The person suffering from *Vishada* usually have *Hina Satva*[2] (inferior type of mental faculties)
- These people cannot get confidence either by self-suggestion or by the influence of near and dear ones
- Even though, the people are having sound and large body, these people cannot sustain slightest negative experiences such as fear, grief, greed, delusion and ego When these people hear the stories describing wrath, fear, hate, terrifying and ugly situation or if they come across to the situations where they can see the flesh or blood of animals or human beings, they get depressed, discolouration (extreme pallor), altered state of consciousness, poor and inconsistant mental faculties, giddiness or falling on the ground and sometimes even death

## Lakshana of Vishada

असिद्धिभयाद्विविधेषु कर्मसु सादोऽप्रवृत्तिः विषादः

Su.Su. – 1/24, Dalhana

The aversion to perform activities related to body, mind and speech associated with the fear of failure.

सीदन्ति मम गात्राणि मुखं च परिशुष्यति ।
वेपथुश्च शरीरे मे रोमहर्षश्च जायते॥
गाण्डीवं स्रंसते हस्तात् त्वक्चैव परिदह्यते।
न च शक्नोम्यवस्थातुं भ्रमतीव च मे मनः॥ Bhagavadgita, 1/ 29-30

The limbs will tremble, mouth will become dry, a shivering occurs in the whole body, horripulation occurs all over the body. My bow, *Gandiva* (whatever object one person holds) slips away from my hand, burning sensation occurs all over the body, one's mind is whirling and I (the person suffering from *Vishada*) cannot stand for longer time.

There is no specific mentioning of *Bheda, Asadhya Lakshana, Arishta Lakshana* and *Sadhyasadhyata* of *Vishada* in *Ayurveda* textbooks.

**Key summary of the section**

- असिद्धिभयाद्विविधेषु कर्मसु सादोऽप्रवृत्तिः विषादः Su.Su. – 1/24, Dalhana, Vishada is the spectrum of the disease where the person will move away from performing the physical or mental or speech related activities due to the fear of failure
- मानसः पुनरिष्टस्य लाभालाभाच्या निष्टस्योपजायते॥

  Ca.Su. – 11/45 Individual Nidana (aetiological factor) for Vishada is not mentioned, but general aetiological factor mentioned for Manasika Vikara (psychological illness) can be considered i.e. obtaining undesirable thing and not obtaining the desired thing by an individual
- Most of the people suffering from Vishada are usually of Hina Satva (inferior quality of mental faculties) where they cannot believe their own words as well as words of their well wishers

  सीदन्ति मम गात्राणि मुखं च परिशुष्यति । वेपथुश्च शरीरे मे रोमहर्षश्च जायते॥

---

GK

[1] For example, if an individual is showing fear to family members, but not to strangers, the degree of Vishada may be different and in some other situations, the individual will have fear while talking to strangers, not to family members, this may show the degree of Vishada may be different. The person may have Vishada in a particular time period such as night time or throughout 24 hours or facing particular situation, this may imply the nature of Vishada is different in all these different time periods.

[2] This type of Satva is possible when the individual may not have consistency in his M-TFAR-D formula in relation to mental faculties. As per this formula, mindset, thought, feeling, action, result and destiny are not aligned with one's core values or belief systems. As these factors are not congruent to one's core values and belief systems, the person will have low self confidence or self esteem, which leads to the vicious cycle of loneliness leading to the manifestation of depression in future days.

* * *

**गाण्डीवं स्रंसते हस्तात् त्वक्चैव परिदह्यते। न च शक्नोम्यवस्थातुं भ्रमतीव च मे मनः॥**

- Bhagavadgita, 1/ 29-30; The limbs will tremble, mouth will become dry, a shivering occurs in the whole body, horripulation occurs all over the body. My bow, Gandiva (whatever object one person holds) slips away from my hand, burning sensation occurs all over the body, one's mind is whirling and I (the person suffering from Vishada) cannot stand for longer time.
- **विषादः अवसादः। जाड्यं मौर्ख्यं विषादो अवसादः सादो विषण्णता इति हेमचन्द्रः।** श.क.द्रु. ; Jadya, Mourkhya, Avasada, Sada and Vishannata are the synonyms of Vishada.
- Purvarupa (prodromal symptoms), Upadrava (complications), Asadhya Lakshana (clinical features indicating incurability of the illness) and Arishta Lakshana (signs of imminent death) of the disease are not mentioned in Ayurveda textbooks.

## Self-Assessment: Questions for Review

### Short essay questions

- Describe Vishada
- Explain Vishada with clinical examples

### Short notes

- Write a short note on Vishada
- Write the synonyms of Vishada

### MCQs

1. **Which of the following is/are the synonyms of Vishada?**

a. Mourkhya; b. Vishannata;

c. Avasada; d. All of the above

*Answer*: (d)

2. **The person suffering from Vishada will have ................ type of Satva.**

a. Pravara Satva; b. Madhyama Satva;

c. Avara Satva; d. Any of the above

*Answer*: (c)

3. **Which of the following is not the synonym of Vishada?**

a. Avasada;

b. Vidhvamsa;

c. Antargranthi;

d. All of the above

*Answer*: (a)

4. **As per Charaka, Vishada is considered to be .............type of Nanatmaja Vikara**

a. Vataja;

b. Pittaja;

c. Kaphaja;

d. Raktaja

*Answer*:(a)

5. **Who has stated the formula TFAR?**

a. T Harv Eker;

b. Brian Tracy;

c. Dr John De Martini;

d. Jack Canfield

*Answer*:(a)

### Chapter resources

- https://www.verywellhealth.com/major-depressive-disorder-5092483 Charaka Samhita, Sutra Sthana 11th chapter, Tisra Aishaniya Adhyaya
- Sushruta Samhita Sutra Sthana – 1st chapter Vedotpatti Adhyaya
- Charaka Samhita, Sutra Sthana – 18th chapter, Trishothiya Adhyaya
- Charaka Samhita, Sutra Sthana – 25th chapter, Yajja Purushiya Adhyaya
- Charaka Samhita, Vimana Sthana – 8th chapter, Roga Bhishak Jitiya Adhyaya
- Sushruta Samhita Sharira Sthana – 1st chapter, Sarva Bhuta Chinta Sharira Adhyaya
- Sushruta Samhita Kalpa Sthana – 3rd chapter, Jangama Visha Vijnaniya Adhyaya
- Shrimad Bhagavad Gita, edited by Ashok Koushik, published by Star Publications (P) Ltd, New Delhi, 110002, 2021
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

52

# Murcha and Sanyasa

## Learning Objectives

- ⇨ To know the meanings of Murcha and Sanyasa
- ⇨ To know Utpadaka Hetu of Murcha and Sanyasa
- ⇨ To know the Samprapti of Murcha and Sanyasa

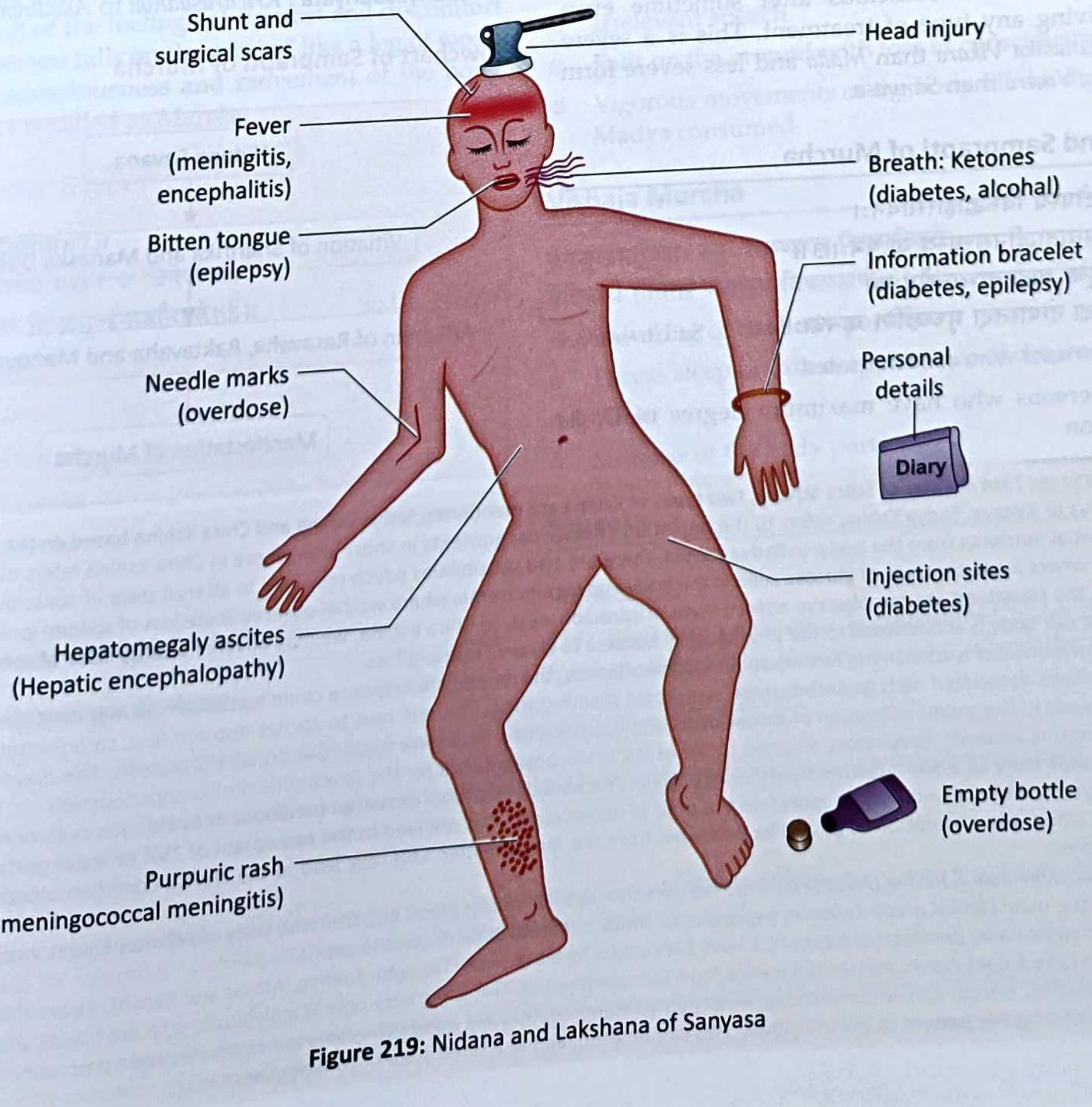

Shunt and surgical scars
Head injury
Fever (meningitis, encephalitis)
Breath: Ketones (diabetes, alcohal)
Bitten tongue (epilepsy)
Information bracelet (diabetes, epilepsy)
Personal details
Diary
Needle marks (overdose)
Injection sites (diabetes)
Hepatomegaly ascites (Hepatic encephalopathy)
Empty bottle (overdose)
Purpuric rash (meningococcal meningitis)

**Figure 219:** Nidana and Lakshana of Sanyasa

## Introduction

*Mada, Murcha* and *Sanyasa* are the spectra of diseases where disturbances of functions of *Manas* can be identified, but the severity of dysfunction are seen in *Mada, Murcha* and *Sanyasa* in increasing severity. In all three spectra of the diseases, *Pitta Dosha* vitiation and *Tamo Dosha* vitiation can be identified. In these diseases, irritation of *Manas* and sensory impairment are mainly observed.

**मदमूर्च्छायसंन्यासास्तेषां विवाद विचणः।**
**यथोत्तरं बलाधिक्यं हेतु लिङ्गो शान्तिषु॥1 2॥** Ca.Su. – 24/12

The *Nidana* (aetiological factors), *Lakshana* (clinical features) and *Upashanti* (line of treatment) of *Mada, Murcha* and *Sanyasa* are same. The degrees of *Nidana* exposure, nature of clinical features and line of treatment in all three diseases are severe in *Mada, Murcha* and *Sanyasa* respectively. In the following pages, we are going to *analyse Murcha* and *Sanyasa* in an elaborate manner.

## Murcha

*Murcha* is the spectrum of diseases where there will be transient loss of consciousness. In this occasion, the patient may become conscious after sometime even without giving any type of treatment. This is a severe form of *Manasika Vikara* than *Mada* and less severe form of *Manasika Vikara* than *Sanyasa*.

## Nidana and Samprapti of Murcha

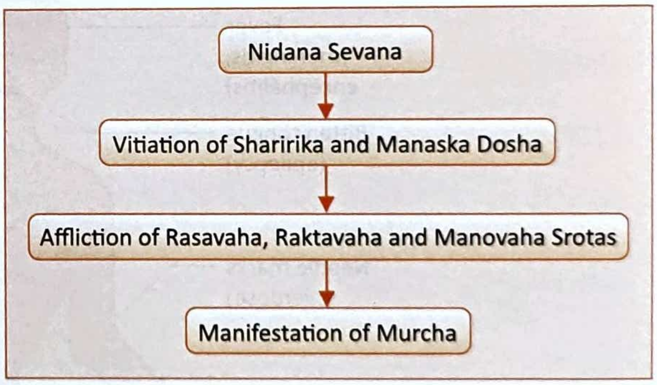
**क्षीणस्य बहुदोपस्य विरुद्धाहारसेविनः।**
**वेगाघातादभिघाताद्धीनसत्त्वस्य वा पुनः॥3॥**
**करणायतनेषूया बाह्योष्वाभ्यन्तरेषु च।**
**निविशन्ते यदा दोषास्तदा मूर्च्छन्ति मानवाः॥4॥** Su.Ut. – 46/3,4

- The persons who are emaciated[1]
- The persons who have maximum degree of *Dosha* vitiation
- The individuals indulged in excess consumption of incompatible substances[2]
- The people who frequently suppress the natural urges of the body[3]
- The people who are exposed to physical trauma[4]
- The persons who are having weak mind (poor mental stamina)[5]
- By exposure to above said aetiological factors, there will be excessive vitiation of morbid *Dosha*; leading to accumulation of these *Dosha* in external and internal sense organs; leading to the manifestation of *Murcha*.

## Samprapti Ghataka

- **Dosha :** *Pitta, Rajas* and *Tamas*
- **Dushya :** *Rasa, Rakta, Manas,*
- **Srotoas :** *Rasavaha, Raktavaha, Sanjnavaha*
- **Srotodushti :** *Sanga* and *Vimargagamana*
- **Vyadhi Svabhava :** *Ashukari*
- **Adhishthana :** *Manas* and *Indriya*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*

### Flowchart of Samprapti of Murcha


Nidana Sevana
Vitiation of Sharirika and Manaska Dosha
Affliction of Rasavaha, Raktavaha and Manovaha Srotas
Manifestation of Murcha

---

GK

[1] Charaka in his 23rd chapter of Sutra Sthana, two types of Kshina are mentioned Sadya Kshina and Chira Kshina based on the duration of the Kshinatva or Kshaya. Sadya Kshina refers to the depletion of essential nutrients in short time where in Chira Kshina refers to prolonged loss of essential nutrients from the body. In Sadya Kshina, there are two possibilities which may lead to altered state of consciousness hypoglycaemia where aucte shortage of glucose seen in the body and hyponatremia where we can observe acute loss of sodium ions from the body. In both the situations, we can observe altered state of consciousness. In Chira Kshina, we may observe altered state of consciousness rare because our body is accustomed to the physiological balance to chronic nutrient loss.

[2] When an individual is consuming incompatible food substances, the immediate response could be the person may develop either vomiting or diarrhoea associated with gastrointestinal symptoms manifestation. This will lead to abrupt nutrient loss, carbohydrates in particular which leads to the excess formation of ketoacidosis and lactic acidosis. This state is called as metabolic acidosis. This may lead to the state of respiratory alkalosis. Respiratory alkalosis is one of the predisposing factor for the development of unconsciousness.
S.N. : Respiratory alkalosis is caused by either hypoxia or metabolic acidosis or increased metabolic demand such as fever etc.

[3] For example, when an individual suppresses the urge of defaecation, that will lead to the absorption of 75% of water portion of the faecal matter along with absorption of gases like ammonia from the faecal matter. This may lead to the clinical condition called hyperammonia syndrome.

[4] When an individual is having physical trauma, the person may have excess blood loss from the body which may lead to hypovolemic shock. One of the main clinical presentation in hypovolemic shock is altered state of consciousness.

[5] Veteran personality development expert, T Harv Eker said a formula TFAR (Thought, Feeling, Action and Result). As per this formula, if you want to have a right result, you should have a right thought process. This is possible only in individuals, who are having abundance of positive thoughts. The persons who are having weak mental stamina), they are more vulnerable to negative thought processes which in turn will lead to destructive pattern of the individual. This can be even lead to altered state of consciousness.

## Purvarupa of Murcha

हत्पीडा जृम्भणं ग्लानिः संज्ञानाशो बलस्य च।
सर्वासां पूर्वरूपाणि यथाखं ता विभावयेत्॥5॥ Su.Ut. – 46/5

- Pain (discomfort) in the chest region
- Excessive yawning
- Exhaustion
- Loss of consciousness (lack of knowledge of the surroundings)
- Loss of strength

## Pratyatma Lakshana of Murcha

संज्ञावहासु नाडीषु पिहितास्खनिलादिभिः।
तमोऽभ्युपैति सहसा सुखदुःखव्यपोहकृत्॥6॥
सुखदुःखव्यपोहाच्च नरः पतति काष्ठवत्।
मोहो मूच्छेति तां प्राहुः
Su.Ut. – 46/6,7

- When *Sanjnavaha Nadi* (channels carrying sensation) become obstructed by aggravated *Vata Dosha* etc leading to the enhancement of *Tamo Dosha* in the body. This abnormal increase of *Tamas* will lead to destruction of the feelings of comfort and discomfort and the person falls on the ground like a log of wood (without consciousness and movement of the body parts); this is called as *Murcha*.

## Types of Murcha: 6 types[6] :

षड्विधा सा प्रकीर्तिता॥7॥
वातादिभिः शोणितेन मद्येन च विषेण च।
पट्स्वप्येतासु पित्तं हि प्रभुत्वेनावतिष्ठते॥8॥ Su.Ut. – 46/7,8

1. *Vataja Murcha*
2. *Pittaja Murcha*
3. *Kaphaja Murcha*
4. *Shonitaja Murcha*
5. *Madyaja Murcha*
6. *Vishaja Murcha*

## Dosha dominant Murcha[7]

अपस्मारोकलिङ्गानि तासामुक्तानि तत्त्वतः। Su.Ut. – 46/9
वातादिजानां तिसृणां लिङ्गमपस्मारोक्तलिङ्गातिदेशेनाह-
Dal; Su.Ut. – 46/9

As far as the types of *Vataja, Pittaja* and *Kaphaja Murcha* are considered, the *Lakshana* observed in these types are similar to the *Lakshana* produced in the context of *Dosha* dominant *Apasmara*.

Hence, while describing these *Dosha* dominant *Murcha*, the *Lakshana* (clinical features) mentioned in the context of *Dosha* dominant *Apasmara* should be considered.

## Raktaja Murcha

स्तब्धाङ्गदृष्टिस्त्वसृजा गूढोच्छ्रासश्च मूच्छितः॥ Su.Ut. – 46/11

The patient of *Raktaja Murcha* will have

- Loss of movement of the body parts
- Loss of movement of the eyes
- Imperceptible expiration

## Madyaja Murcha

मद्येन विलपंश्छेते नष्ट विभ्रान्तमानसः।
गात्राणि विक्षिपन् भूमौ जरां यावन्न याति तत्॥12॥ Su.Ut. – 46/12

- Irrelevant speech
- Falls on the ground with loss of consciousness
- Vigorous movements of the body till the digestion of Madya consumed

## Vishaja Murcha

वेपथुखमतृष्णाः स्युः स्तम्भश्च विषमूच्छिते।
वेदितव्यं तीव्रतरं यथास्वं विषलक्षणैः॥13॥ Su.Ut. – 46/13

- Shivering of the body parts
- Excess sleep or excess appearance of dreams
- Thirst
- Stiffness of the body parts

## Sanyasa

### Introduction

This spectrum of disease is considered to be the severe form of disorder of *Manovaha Srotas* where the degree of

---

[6] 4 types as per Charaka: Vataja; Pittaja; Kaphaja and Sannipataja Murcha (Ca.Su. – 24/35-41)

[7] Su.Ut. – 61/11, 12
Vataja Apasmara patients will have tremblings, bites his teeth, breathing discomfort; frothy vomiting; says that abnormal, black animals (or objects) are running after him and so he has lost his mind.
Pittaja Apasmara:
Su.Ut. – 61/12-14
Pittaja Apasmara patients will have thirst; warmth of the body; sweating; fainting; shakes his body parts; who is agitated; who says that yellow animals (or objects) are running after him and so one's mind becomes lost.
Kaphaja Apasmara:
Su.Ut. – 61/12-14
Kaphaja Apasmara Lakshana are coldness; nausea; excessive sleep; falls on the ground vomiting Kapha; who says abnormal white animal (or object) is running after him and so one's mind is lost.

*Dosha* vitiation is much more when compared to *Mada* and *Murcha*.

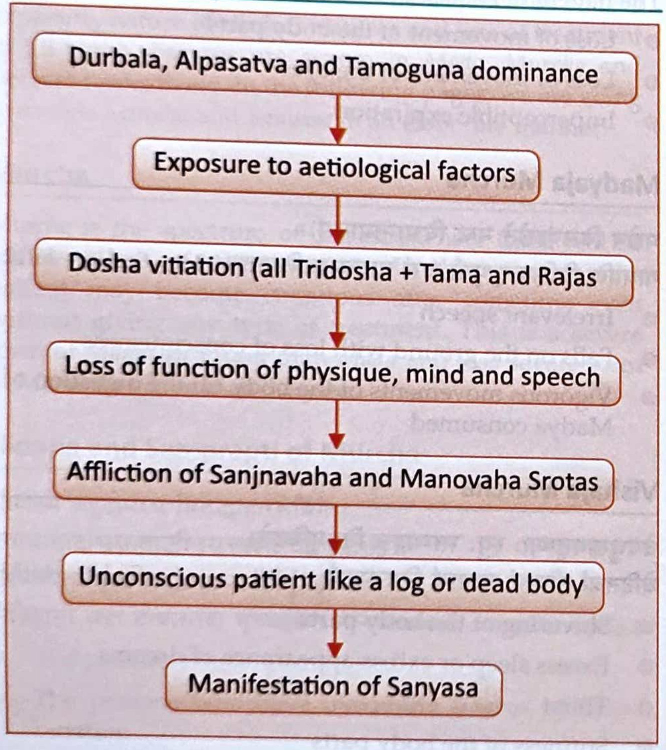
In this disease, the person may not regain consciousness by any of the measures, unless we give proper treatment.

**प्रभूतदोषस्तमसोऽतिरेकात् संमूच्छितो नैव विवुध्यते यः॥**
**संन्यस्तसंज्ञो भृशदुश्चिकित्स्यो ज्ञेयस्तदा वुद्धिमता मनुष्यः।**

Su.Ut. – 46/20,21

In this disease, the person will have the exacerbation of *Dosha* or dominance of *Tamo Dosha* in particular and this is characterised by non awakening state or unconscious state. This is very difficult to cure.

## Samprapti of Sanyasa


Durbala, Alpasatva and Tamoguna dominance
Exposure to aetiological factors
Dosha vitiation (all Tridosha + Tama and Rajas
Loss of function of physique, mind and speech
Affliction of Sanjnavaha and Manovaha Srotas
Unconscious patient like a log or dead body
Manifestation of Sanyasa

## Samprapti Ghataka

- **Dosha :** *Tridosha* + *Tama* and *Rajas*
- **Dushya :** *Rakta, Mamsa, Manas*
- **Srotas :** *Raktavaha, Mamsavaha* and *Manovaha Srotas*
- **Srotodushti Prakara** : *Sanga* and *Vimargagamana*
- **Vyadhi Svabhava :** *Ashukari*
- **Sadhyasadhyata :** *Krichrasadhya* to *Asadhya*
- **Rogamarga** : *Madhyama, Bahya*

**दोषेषु मदमूर्च्छायाः कृतवेगेषु देहिनाम्।**
**स्वयमेवोपशाम्यन्ति संन्यासो नौषधैर्विना॥ 42॥**
**वाग्देहमनसां चेष्टामादियातिबला मलाः।**
**संन्यस्यन्त्यबलं जन्तुं प्राणायतनसंश्रिताः॥ 43॥**
सना संन्याससंन्यस्तः काष्ठीभूतो मृतोपमः।
प्राणैर्वियुज्यते शीघ्रं मुत्त्वा सद्यः फलाः क्रियाः॥44॥
दुर्गेऽम्भसि यथा मज्जद्भाजनं त्वरया बुधः।
गृह्णीयात्तलमप्राप्तं तथा संन्यासपीडितम्॥ 45॥
अञ्जनान्यवपीडाश्च धूमाः प्रधमनानि च।
सूचीभिस्तोदनं शस्तं दाहः पीडा नखान्तरे॥ 46॥
लुञ्चनं केशलोम्नां च दन्तैर्दशनमेव च।
आत्मगुप्तावघर्षश्च हितं तस्यावबोधने॥ 47॥ Ca.Su. – 24/42-47

In case of *Mada* and *Murcha*, the patient may regain consciousness after certain period of time.

However, in case of *Sanyasa*, until and unless we give appropriate line of treatment, the individual may not regain the consciousness.

The following features are observed in the persons who are suffering from *Sanyasa*:

- The affliction of faculties of speech, physique and mind.

  The person is not moving his body parts and his mind will not respond to your stimuli and his speech is totally lost i.e. unable to listen, speak and comprehend the words spoken by other people
- The person of *Sanyasa* will look like dead person
- The person will look like log or stick like without any movement lie in the bed or in the place where he is lying
- The following measures[8] if used judiciously and wisely, such as applying the *Anjana* (collyriums), *Avapidana Nasya, Dhuma Nasya* or *Pradhamana Nasya* (administering strong and potent nasal administration of medicine), pricking different parts of the body with nails, applying warm utensil to different parts of the body, pricking in between nail and nailbed, plucking hairs of the head and body; biting the patient's body with teeth, rubbing the patient's body with hairy fruits of *Atmagupta*.

  Frequent administration of juice of *Matulunga* added with dry ginger and *Sauvarchala* type of salt combined with *Hingu* and wine or sour juice or vinegar should be done to arouse from unconsciousness.
- When the person regains consciousness, he should be given light diet and during this period he should be entertained with surprising narratives, memoirs, pleasing talks, enchanting songs and playing musical instruments and colourful scenery.

  Moreover, he should be treated with purgation, emesis, smoking, collyrium, gargles, blood letting and rubbing over the body.

  Thus, his mind should be protected well from the causes of destruction.

---

[8] These are the measures which are considered as counter irritants which help in immediate arousal, if the person is in a state of coma.

## Key summary of the chapter

- Mada, Murcha and Sanyasa are the spectra of diseases where disturbances of functions of Manas can be identified, but the severity of dysfunction are seen in Mada, Murcha and Sanyasa in increasing severity.

मदमूर्च्छायसंन्यासास्तेषां विद्याद विचचणः। यथोत्तरं बलाधिक्यं हेतु लिङ्गो शान्तिषु॥1 2॥

Ca.Su. – 24/12

- The Nidana (aetiological factors), Lakshana (clinical features) and Upashanti (line of treatment) of Mada, Murcha and Sanyasa are same. The degrees of Nidana exposure, nature of clinical features and line of treatment in all three diseases are severe in Mada, Murcha and Sanyasa respectively.

दुर्बलं चेतसः स्थानं यदा वायुः प्रपद्यते मनो विक्षोभयन् जन्तोः संज्ञां संमोहयेत् तदा॥
तमेवं कश्चैवं मनो विनोभयन्नृणाम्। संज्ञां नयत्याकुलतां विशेषश्चात्र कथ्यते॥1 3॥

Ca.Su. – 24/12,13

- As far as Samprapti of the disease is concerned, depending upon the degree of exposure of the aetiological factor; nature of Dosha vitiation in the body; degree of affliction of Rajas and Tamas Dosha, the person may develop either Mada, Murcha or Sanyasa. When a person is indulged in contaminated food, there will be vitiation of Dosha where in vitiated Vata Dosha will afflict Hridaya (site of Chetana), deranging the functions of Manas and deranged perceptions of the affected individual. Depending upon the varied degree of abnormal Rajas and Tamas Dosha, the person may show abnormal degree of Mada.
- Sankhya Samprapti of Mada are 7 types: Vataja, Pittaja, Kaphaja, Sannipataja, Madyaja, Shonitaja and Vishaja Mada. Sankhya Samprapti of Murcha as per Sushruta are Vataja, Pittaja, Kaphaja, Shonitaja, Madyaja and Vishaja Murcha. There are no subtypes are mentioned for Sanyasa.

## Self-Assessment: Questions for Review

### Short essay questions

- Describe Mada
- Explain Murcha
- Describe Sanyasa
- Write the differences between Mada, Murcha and Sanyasa

### Short answers

- Write a short note on Mada
- Write a short note on Murcha
- Write a short note on Sanyasa
- Enumerate the types of Mada
- Write the types of Murcha

### MCQs

1. **Which of the following disease is considered to be severe in severity?**
   a. Mada;
   b. Murcha;
   c. Sanyasa;
   d. All of the diseases having similar in severity

*Answer*: (c)

2. **Which of the following disease is/are considered to be mild in severity?**
   a. Mada;
   b. Murcha;
   c. Sanyasa;
   d. All of the diseases having similar in severity

*Answer*: (a)

3. **Sankhya Samprapti of Mada is**
   a. 5 types;
   b. 7 types;
   c. 9 types;
   d. 3 types

*Answer*: (b)

4. **Kashthibhuto Mritopamam is the term associated with**
   a. Mada;
   b. Murcha;
   c. Sanyasa;
   d. None of the above

*Answer*: (c)

5. **Types of Murcha as per Sushruta are**
   a. 7 types;
   b. 6 types;
   c. 5 types;
   d. 4 types

*Answer*: (b)

6. **Which of the following is used currently to determine the degree of consciousness?**
   a. EMV score;
   b. Korotkoff sounds;
   c. Aphasia;
   d. All of the above

*Answer*: (a)

7. **The best score in Glasgow Coma Scale is**
   a. 3;

- b. 10;
- c. 15;
- d. 20

*Answer*: (c)

**8. The worst score in Glasgow Coma Scale is**

- a. 3;
- b. 10;
- c. 15;
- d. 20

*Answer*: (a)

**9. Srotas involved in Murcha is**

- a. Raktavaha Srotas;
- b. Medovaha Srotas;
- c. Shukravaha Srotas;
- d. Sanjnavaha Srotas

*Answer*: (d)

**10. Types of Sanyasa mentioned in Charaka Samhita are**

- a. 3;
- b. 5;
- c. 7;
- d. No types are mentioned in Charaka Samhita

*Answer*: (d)

**Chapter resources**

- https://neupsykey.com/the-unconscious-or-confused-patient/
- Charaka Samhita, Sutra Sthana 24th chapter: Vidhi Shonitiya Adhyaya
- Sushruta Samhita, Uttara Tantra – 46th chapter: Murcha Pratishedha Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

53

# Common Psychiatric Diseases

**Learning Objectives**

- ➩ To learn the clinical features of depression, anxiety neurosis, epilepsy (non-organic)
- ➩ To differentiate depression, anxiety neurosis, epilepsy (non-organic)
- ➩ To perform mental status examination for depression, anxiety neurosis, epilepsy (non-organic)

## Depression

Depressive disorders are characterized by sadness severe enough or persistent enough to interfere with function and often decreased interest or pleasure in activities. Exact cause is unknown but probably involves heredity, changes in neurotransmitter levels, altered neuroendocrine functions, and psychosocial factors. Diagnosis is based on history.

- The term depression is often used to refer to any of several depressive disorders.

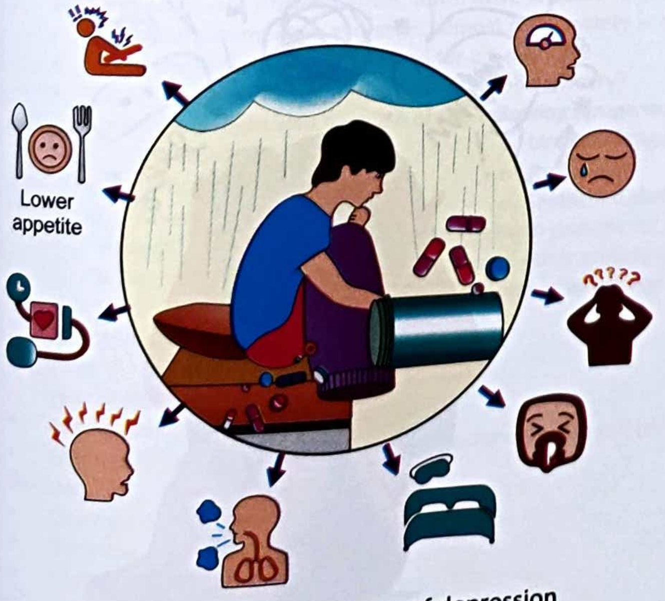


Figure 220: Clinical features of depression

- **3 types are mentioned in DSM – IV** (Diagnostic and statistical manual of mental disorders – 4th edition) by specific symptoms:

1. Major depressive disorder (often called major depression)
2. Dysthymia
3. Depressive disorder not otherwise specified

- **2 others are classified by aetiology:**

1. Depressive disorder due to a general physical condtions
2. Substance induced depressive disorder

- Depressive disorders occur at any age, but typically develop during mid teens, 20s or 30s. In primary care settings, as many as 30% of the patients report depressive symptoms, but <10% have major depression.
- The term depression is often used to describe the low or discouraged mood that results from disappointments or losses. Here, the better term could be demoralization. Low mood usually lasts days rather than months.
- Exact cause is unknown. Major life stresses and losses commonly precede episodes of depression.
- Depression causes cognitive, psychomotor and other types of dysfunction (e.g. poor concentration, fatigue, loss of sexual desire, loss of pleasure), as well as depressed mood. Other mental symptoms (anxiety attacks and panic attacks) commonly coexist, sometimes complicating the diagnosis and treatment.
- Patients with all forms of depression may have substance abuses more commonly to ethyl alcohol.

### Major depression (unipolar disorder)

Periods that include ≥ 5 mental or physical symptoms and last ≥ 2 weeks are classified as major depression. One of the symptoms must be sadness deep enough to be described as despondency or despair or loss of interest or pleasure in usual activities (anhedonia). Other mental symptoms include feelings of worthlessness or guilt, recurrent thoughts of death or suicide, and reduced ability to concentrate. Physical symptoms include changes in weight or appetite, loss of energy, fatigue, psychomotor retardation and sleep disorders (insomnia or hypersomnia, early morning awakening).

- Patients may appear miserable with tearful eyes, furrowed brows, down turned corners of the mouth, slumped posture, poor eye contact, lack of facial expression, little body movement, speech changes (soft voice, lack of prosody, use of monosyllable words).
- **4 subgroups are made:** Psychotic, catatonic, melancholic and atypical.
  1. **Psychotic:** This subgroup is characterized by delusions, often having committed unpardonable sins or crimes, of harbouring incurable or shameful disorders or of being persecuted. Patients with delusions may laso have auditory or visual hallucinations (e.g. hearing accusatory or condemning voices). If only voices are described, careful consideration should be given to whether the voices represent true hallucinations.
  2. **Catatonic:** This subgroup is characterized by severe psychomotor retardation or excessive purposeless activity, withdrawal and in some patients, grimacing and mimicry of speech (echolalia) or movement (echopraxia).
  3. **Melancholic:** This subgroup is characterized by loss of pleasure in nearly all activities, inability to respond pleasurable stimuli, unchanging emotional expression, excessive or inappropriate guilt, early morning awakening, marked psychomotor retardation and significant anorexia or weight loss.
  4. **Atypical:** This subgroup is characterized by a brightened mood in response to positive events and rejection sensitivity resulting in depressed overreaction to perceived rejection or criticism, feelings of leaden paralysis or anergy, weight gain or increased appetite, and hypersomnia.

### Dysthymia

- Low level subthreshold depressive symptoms that persist for ≥ 2 years are classified as dysthymia.
- Symptoms typically begin insidiously during adolescence and follow low grade course over many years or decades.
- Affected patients may have gloomy, pessimistic, humourless, passive, lethargic, introverted, hypercritical of self or others; and complaining.
- Patients with chronic depressive states; whether dysthymia or chronic major depression are also more likely to have underlying anxiety, substance use or personality disorders.

### Depression not otherwise specified (NOS)

- Cluster of symptoms that do not meet criteria for other depressive disorders are classified as depression NOS. for example, minor depression may involve ≥ 2 weeks of any of the symptoms of major depression, but fewer symptoms than the 5 are required for diagnosing major depression.
- Brief depressive disorder involves the same symptoms required for diagnosing major depression, but lasts for 2 days to 2 weeks.
- Diagnosis by DSM – IV clinical criteria. No laboratory findings are pathognomonic for depressive disorders.

## Anxiety Neurosis

The concept of anxiety neurosis was based on Freud's early theoretical description of free floating anxiety and the concept included both panic disorder and GAD (Generalised Anxiety Disorder) concurrently. Anxiety neurosis term was coined by Sigmund Freud a century ago. Based on this description, we are going to analyse two descriptions here: GAD (Generalized Anxiety Disorder) and panic disorder.

**Figure 221:** Anxiety neurosis

### Generalised Anxiety Disorder (GAD)

This disease is characterized by excessive, almost daily anxiety and worry for ≥ 6 months about may activities or events. The cause is unknown, although it commonly coexists in people who have alcohol abuse, major depression or panic disorder. Diagnosis is based on history and physical examination.

- GAD is common, affecting 1% of the population within 1 year period. Women are twice as likely to be affected as men. The disorder often begins in childhood or adolescence, but may begin at any age.
- The patient will have multiple worries, which often shift over time. Common worries include work and family responsibilities, money, health, safety, car repairs and chores.
- The course is usually fluctuating and chronic, with worsening during stress. Most people with GAD have one or more other comorbid psychiatric disorders, including major depression, specific phobia, social phobia and panic disorder.
- Diagnosis[1] is based on clinical criteria of DSM – IV.

### Panic disorder

Panic disorder is occurrence of repeated panic attacks typically accompanied by fears about future attacks or changes in behaviour to avoid situations that might predispose to attacks. Panic attack is the sudden onset of a discrete, brief period of intense discomfort, anxiety or fear accompanied by somatic or cognitive symptoms. Diagnosis is clinical.

- Panic attacks are common, affecting as many as 10% of the population in a single year. Most people recover without treatment; a few develop panic disorder. Panic disorder is uncommon, affecting 2 – 3% of the population in 12 months period.
- Panic disorder usually begins in late adolescence or early adulthood and affects women 2 to 3 times more often than men.
- A panic attack[2] involves the sudden onset of at least 4 of 13 symptoms. Symptoms usually peak within 10 minutes, thereafter leaving little time for a physician to observe.
- Panic attacks may occur in any anxiety disorder, usually in situations tied to the core features of the disorder (e.g. a person with a phobia of snakes may panic at seeing a snake).
- Most people with panic disorder anticipate and worry about another attack (anticipatory anxiety) and avoid places or situations where they previously have panicked.

  People with panic disorder often worry that they have a dangerous heart, lung or brain disorder and repeatedly visit their family physician or emergency department seeking help.
- Many people of panic disorder also have symptoms of depression.
- Diagnosis is done after physical disorders that can mimic anxiety are eliminated and symptoms meet diagnostic criteria as per DSM IV.

### Epilepsy (Non-Organic)

**Seizure disorders** are group of disorders where abnormal, **unregulated** electrical discharge that occurs within the brain's cortical gray matter and transiently interrupts **normal** brain function. A seizure typically

---

GK

[1] With the exclusion of other causes, affirmative answers to the following questions confirm the diagnosis.
- Does the patient have excessive, almost daily anxiety and worry about many activities or events?
- Have the anxiety or worry lasted for ≥ 6 months?
- Does the patient have difficulty in controlling worry?
- Does the patient also have ≥ 3 of the following symptoms?
  - Restlessness
  - Difficulty concentrating
  - Muscle tension
  - Unusual fatiguability
  - Irritability
  - Disturbed sleep
- Have at least some of these symptoms been present for a majority of days in the past 6 months?
- Is the focus of worry broader than that in other anxiety disorders?
- Have symptoms caused substantial distress or interfered with function?

[2] Symptoms of panic attack:

**Cognitive:**
- Fear of dying
- Fear of going crazy or of losing control
- Feelings of unreality, strangeness or detachment from self (depersonalization)

**Somatic:**
- Chest pain or discomfort
- Dizziness, unsteady feelings or faintness
- Feeling of choking
- Flushes or chills
- Nausea or abdominal distress
- Numbness or tingling sensations
- Palpitations or accelerated heart rate
- Sensations of shortness of breathlessness or smothering feeling
- Trembling or shaking

produces altered awareness, abnormal sensations, focal involuntary movements or convulsions (widespread violent involuntary contraction of voluntary muscles).

- Epilepsy (also called epileptic seizure disorder) is a chronic brain disorder characterized by recurrent (≥ 2), unprovoked seizures (i.e. not related to reversible stressors).
- In non organic epilepsy, various brain disorders such as malformations, strokes, brain tumours, CNS infections, cardiovascular disorders, are not identified after elaborate patient history analysis.
- Functional disturbances which can occur because of metabolic disturbances such as hypocalcemia or hypoglycemia or hyponatremia; drug toxicity or drug withdrawal; alcohol withdrawal can lead to manifestation of attacks of epilepsy. These causes are categorized under non organic causes of episodes of epilepsy.
- Diagnosis can be done by elaborate clinical evaluation and appropriate laboratory investigations. For example, when one suspects hypoglycemia as the cause of epileptic attack, then blood sugar analysis should be done to rule out the cause of epilepsy.

## Key summary of the chapter

- Common psychiatric diseases which may afflict human beings include depression, anxiety neurosis. In the patients of epilepsy due to non organic causes, abnormal functioning of the nervous system is observed.
- Depressive disorders are characterized by sadness enough or persistent enough to interfere with function and often decreased interest or pleasure in activities. Exact cause is unknown, but probably involves heredity, changes in neurotransmitter levels, altered neuroendocrine functions, and psychosocial factors. Diagnosis is based on elaborate case history analysis.
- Major depression is often used to refer to any of several depressive disorders. 3 types are mentioned: Major depressive disorder, dysthymia and depressive disorder not otherwise specified. Based on the aetiology, 2 types of depression are described: depressive disorder due to a physical condition & substance induced depressive disorder.
- Anxiety neurosis is now known as generalized anxiety disorder. Panic disorder is also having frequent episodes of panic attacks where the person will have anxiety.
- Epilepsy of non-organic origin refers to the clinical condition where the person may have seizure episodes, but structural abnormalities in the body is not identifiable by extensive imaging techniques.

## MCQs

**1. The duration of the illness in the patient of dysthymia is upto or more than ..........year/s.**

a. 1 year; b. 2 years;

c. 3 years; d. 4 years

*Answer*: (b)

**2. Melancholic is a type of**

a. Major depression; b. Mania;

c. Mental retardation; d. Mental agitation

*Answer*: (a)

**3. The term anxiety neurosis is coined by**

a. Sigmund Freud; b. Eric Burne;

c. Marie Curie; d. William Harvey

*Answer*: (a)

**4. Generalised anxiety disorder (GAD) is more commonly seen in**

a. Males; b. Females;

c. Equally in males & females d. Children

*Answer*: (b)

**5. DSM-IV is related to**

a. Psychiatric diseases; b. Neurological diseases;

c. Alimentary canal diseases;

d. Cardiac diseases

*Answer*: (a)

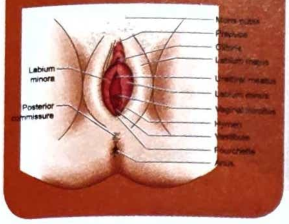
## Chapter resources

- https://www.freepik.com/free-vector/anxiety-concept-illustration_21864011.htm#query=anxiety%20disorder&position=2&trom_view=keyword&track=ais&uuid=2d4a7754-e8c6-4366-87bd-4787ccfc17b2
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- www.medium.com, www.sciencedirect.com

***

CHAPTER

54



# Phiranga and Upadamsha

**Learning Objectives**

- ⇨ To understand the concept of Phiranga and Upadamsha
- ⇨ To understand the Nidana of Phiranga and Upadamsha mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To know the types of Phiranga mentioned in Ayurveda

*Phiranga* and *Upadamsha* are the diseases afflicted in the individuals after having the sexual contact with the individuals who are suffering from the disease. As these diseases are manifested in the individuals after having the sexual contact with afflicted individuals, these are categorized under diseases of *Shukravaha Srotas*. These diseases can also be categorized under *Agantuja Jvara, Abhishangaja Jvara* in particular. In the coming pages, we are going to analyse the diseases in a little elaborate manner.

## Definition of Phiranga

**फिरङ्ग सञ्ज्ञके देशे बाहुल्येनैव यत् भवेत्।**
**तस्मात् फिरङ्ग इत्युक्तो व्याधिर्व्याधिविशारदैः॥** BPM – 59/1

The disease which is predominantly seen in the country called *Phiranga* (Portugal[1]). *Phiranga* is first introduced by the people of *Phiranga Desha* (Portugal) to the people in our country. Hence, the name of this disease is *Phiranga*.

## Nidana of Phiranga

**गन्धरोगः फिरङ्गोऽयं जायते देहिनां ध्रुवम्।**
**फिरङ्गिणोऽङ्गसंसर्गात् फिरङ्गिण्याः प्रसंगतः॥** BPM – 59/2

*Phiranga* is also known as *Gandharoga*. This disease is manifested by the sexual intercourse by the people suffering from *Phiranga* with the people who are not suffering from it. This disease was first seen in *Phiranga Desha*.

## Samprapti of Phiranga

**व्याधिरागन्तुजो ह्येष दोषाणामत्र संक्रमः।**
**भवेत्तं लक्षयेत्तेषां लक्षणैर्भिषजां वरः॥** BPM – 59/3

As far as the pathogenesis of the disease is concerned, this is considered to be *Agantuja* or exogenous in origin. Clinical features[2] can be observed first and vitiation of *Dosha* is observed after some period of time.

## Sankhya Samprapti of Phiranga

**फिरङ्गस्त्रिविधो ज्ञेयो बाह्याभ्यन्तरस्तथा।**
**बहिरन्तर्भवश्चापि तेषां लिङ्गानि च ब्रुवे॥** BPM – 59/4

**Types of Phiranga:** 3 types are being mentioned.

1. *Bahya Phiranga*
2. *Abhyantara Phiranga*
3. *Bahirabhyantara Phiranga*

## Bahya Phiranga

**तत्र बाह्य फिरङ्गः स्यात्विस्फोटसदृशोऽल्परुक्।**
**स्फुटितो व्रणवद् वेध्यः सुखसाध्योऽपि स स्मृतः॥** BPM – 59/5

---

[1] Commonest sexually transmitted infections commonly observed in Portugal are syphilis, gonorrhoea and chlamydia in the proportions of 51.5%, 33.2% and 15.3% respectively.

[2] Chakrapani in the context of Jvara Nidana chapter in Nidana Sthana, states Dosha vitiation in case of Agantuja Jvara occurs after a time period of 7 days. As soon as the person comes in contact with the exogenous aetiological factor, he will have symptoms related to aetiological causes of exogenous origin without the vitiation of Dosha.

*Bahya Phiranga* is presented with the eruption in the skin in the form of blisters or vesicles associated with mild pain.

When it bursts, it gives rise to ulcer formation and can be cured easily.

## Abhyantara Phiranga

सन्धिष्वाभ्यन्तरः स् स्यादामवात इव व्यथाम्।
शोथं च जनयेदेष कष्टसाध्यो बुधैः स्मृतः॥ BPM – 59/6

*Abhyantara Phiranga* is presented with joint involvement. The pain and swelling resembles with the clinical features of *Amavata*. It is very difficult to cure.

### Babirabhyantara Phiranga

This type of *Phiranga* is presented with the mixed features of *Bahya* and *Abhyantara Phiranga*.

## Upadrava of Phiranga

कार्श्य बलक्षयो नासाभङ्गो वह्नेश्च मन्दता।
अस्थिशोषोऽस्थिवक्रत्वं फिरङ्ग उपद्रव अमी॥ BPM – 59/7

*Upadrava* of *Phiranga* are

- *Karshya*[3] (emaciation)
- *Balakshaya*[4] (loss of strength)
- *Nasabhanga*[5,6] (deformity of the nose)
- *Agnimandya*[7] (poor digestive function)
- *Asthishosha* (dryness of bones)
- *Asthi Vakrata*[8] (deformities of bone)

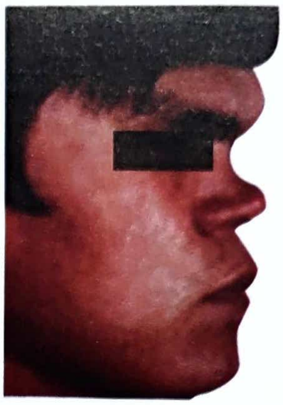


Figure 222: Upadrava of Phiranga

## Sadhyasadhyata of Phiranga

बहिर्भवो भवेत्साध्यो नवीनो निरुपद्रवः।
आभ्यन्तरस्तु कष्टेन साध्यः स्यादयमामयः॥
बहिरन्तर्भवो जीर्णः क्षीणस्योपद्रवैर्युतः।
व्याप्तो व्याधिरसाध्योऽयमित्याहुर्मुनयः पुरा॥ BPM – 59/8,9

- *Phiranga* which is *Bahya*[9] (external), duration of the illness is short and not having any complications is easily curable
- *Phiranga* which is *Abhyantara*[10] (internal) is curable with difficulty.
- *Phiranga* is both *Bahya* (external) and *Abhyantara* (internal), duration of illness is long or chronic in manifestation, disease seen in emaciated individuals and disease spread to other parts of the body is incurable[11]

---

**GK**

[3] When an individual is presented with chronic sexually transmitted infection or any of the infection, he may have emaciation of the body. This is attributable to increased mobilisation of accumulated fat in the adipose tissue to the circulation secondary to nutrient loss and as the person is suffering from chronic infection, whatever the food he consumes, those nutrients are being utilised from the body to combat these infection, instead of utilisation of these nutrients from the body tissues.

[4] This is attributable to sequential loss of carbohydrate and fat from the body. There will be loss of water and electrolytes from the body along with loss of macro nutrients. Water is one of the essential component of the human body. 66% of the body contains water. Sodium and potasskum ions are necessary for every activity of the cell, including muscular tissue and nervous tissue. Hence the deficiency of these ions may lead to significant and clinical evident loss of strength by the patient.

[5] Multiple fractures including nasal bone can be observed in the patients of congenital syphilis. Bone abnormalities can be the only clinical manifestation in the patients of congenital syphilis.

[6]

[7] This may occur as there will be shift of circulation occur because of deviation of increased circulation to the affected parts. Hence, alimentary canal will receive minimum amount of blood supply leading to poor secretion in the alimentary canal.

[8] Bone deformities are usually the consequence of congenital syphilis. Bone afflictions in syphilis are noticed in tertiary stage of syphilis.

[9] As the disease is related to Bahya Rogamarga, it is comparatively easy to cure. As per Ayurveda fundamentals, what we have to do is to bring the vitiated Dosha from Bahya tp Abhyantara Rogamarga and from this Abhyantara Rogamarga (alimentary canal), vitiated Dosha may be eliminated either oral or anal route.

- As the duration of the illness is short, it is natural that the time taken for the complete cure from the disease will become shorter provided if the suffering individual follows proper diet and regimen.
- If an individual is having presence of Upadrava (complication), then such diseases are considered as difficult to cure. When an individual is not having any type of Upadrava, then such type pf diseases are considered as Sukhasadhya (easily curable) disease.

[10] When an individual is suffering from only Abhyantara Rogamarga and no Lakshana indicating Bahya Rogamarga is observed in the individual, then such diseases are considered as difficult to cure, because the patient as well as clinician may need more amount of time to diagnose the disease and by that time, most of the damage might be done to the patients.

[11] In this situation, the person will have profound nutrient loss from different anges.

- Multiple Rogamarga affliction which requires much vigorous treatment
- Duration of the illness is long, this indicates the person suffering from the disease require more longer line of treatment.

## Introduction

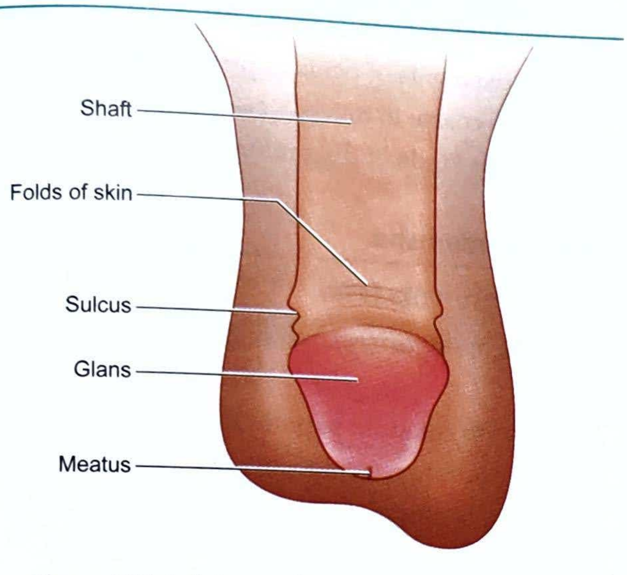


**Figure 223:** Lakshana of Upadamsha in males

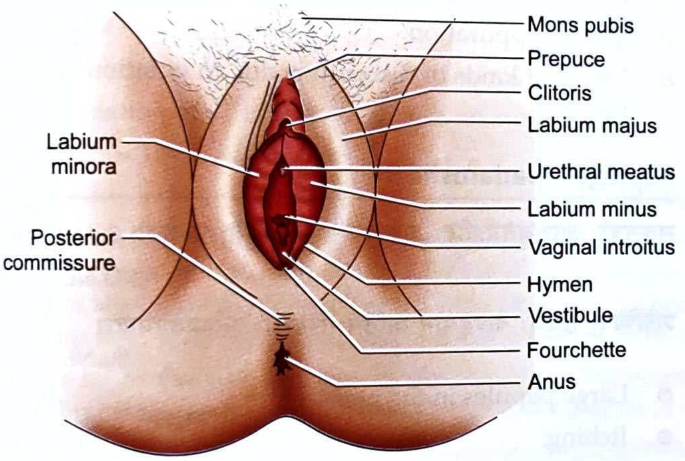


**Figure 224:** Lakshana of Upadamsha in females

*Upadamsha*[12, 13] is the group spectrum of diseases where one will observe swelling in the penis and urethra due to external causes. such as oral stimulus or biting with teeth etc. The word Damsha refers to the activity related to teeth. Any activity which involves teeth, tongue or oral cavity used to arouse the sexual partner and if the person is having disease causing organism in the oral cavity, that may lead to the manifestation of *Upadamsha.*

उपदंशसंज्ञा च दंशनोपाधिमन्तरेणापि रूढा बोद्धव्या।

Madhu, Ma.Ni. – 47/1

## Nidana of Upadamsha

हस्तामिघातान्नखदन्तपातादधावनादृत्य तिसेवनाद्वा !
योनिप्रदोषाच्च भवन्ति..... विविधापचारैः ....... Ma.Ni. – 47/1

विविधापचारैरिति अशुद्धसलिलप्रक्षालनब्रह्मचारिणीगमनादिभिः।
Madhu, Ma.Ni. – 47/1

तत्रातिमैथुनादतिब्रह्मचर्याद्वा तथा ब्रह्मचारिणीं चिरोत्सृष्टां रजस्वलां दीर्घरोमां कर्कशरोमां सङ्कीर्णरोमां निगूढरोमामल्पद्वारां महाद्वारामप्रियामकामाम चौक्ष्य सलिलप्रक्षालितयोनिमप्रक्षालितयोनिं योनिरोगोपसृष्टां स्वभावतो वा दुष्टयोनिं वियोनिं वा नारीमत्यर्थमुपसेवमानस्य तथा करजदशनविपशुक निपातनान् बन्धनात् हस्ताभिघाताच्चतुष्पदी- गमनादचौक्ष्यसलिलप्रक्षालनादवपीडनाच्छुक्र- मूत्र- वेग विधारणान्मैथुनान्ते वाऽप्रक्षालनादिभिर्मेंद्र मागम्य प्रकुपिताः दोषाः क्षतेऽक्षते वा श्वयथुमुप।
जनयन्ति, तमुपदंशमित्याचक्षते॥7॥ Su.Ni. – 12/7

- Over indulgence in sexual intercourse[14].
- Indulging sexual intercourse in women who are observing celibacy for longer period[15].
- Sexual intercourse with puerperal women.
- Indulging in sexual intercourse with menstruating woman[16].
- Indulging in sexual intercourse with women who are having long, hard, thick and hidden pubic hairs[17].
- Indulging in sexual intercourse having too narrow or too large vaginal opening[18].
- Indulging in sexual intercourse with women who are

---

G K

- When the person is emaciated due to the illness, that indicates the person is not having enough nutrition to withstand the potency of the medicine as well as virulence of the disease causing microorganism.
- When an individual is having multiple organ involvement during the progression of the disease. Each organ affliction requires typical line of treatment and this may compromise overall functioning of the human body.

[12] Injury can occur in any part of the external genitalia, each of which have typical presentation, e.g. injury to shaft of penis leads to erectile dysfunction. Injury to urethra leads to haematuria. Oral stimulation of the genitalia may lead to wide range of infections to the part of the genitalia if there is any ulcer (discontinuity) in the skin occurs, as oral cavity contains millions of microorganisms.

[13] Most common areas of injury can occur in either in the vagina or vaginal introitus. Oral stimulation of genitalia can lead to the manifestation of either vaginal infection or urinary tract infection.

[14] Excessive indulgence in sexual activity by the infected individual either male or female may lead to injury to the genital organs.

[15] In this occasion, the lady may have injury to the private parts in a short time and if the infected individual performs sexual activity, the lady may have rapid progression of the infection.

[16] During this occasion, the pH of the vagina may be around 3.8 to 4.2 due to the presence of lactobacillus sp. These bacteria will keep the vagina healthy by preventing overgrowth of pathogenic bacteria. During menstruation and peuperal period, the vaginal pH is moving towards alkalinity, thus intercourse by infected individual may lead to the proliferation of microorganisms in the vagina.

[17] In this instance, the presence of pubic hairs is responsible for the proliferation of pathogenic organisms in the genital region and entry of these microbes into the urethra and vagina easily leading to urethritis and vaginitis. Thus, it may lead to the transmission of the infection to the sexual partner.

[18] In this instance, there will be more increase of pathogenic bacteria in the genital region leading to genital infection, thus, the person indulges in sexual contact in such woman, there is a chance of spread of infection to the partner.

not liked or not sensual[19].

- Indulging in sexual intercourse with woman who has washed genitals with contaminated water or who has not washed at all[20].
- Indulging in sexual intercourse with woman having *Yoniroga* (diseases of female reproductive system)
- Indulging in sexual intercourse other than penovaginal contact such as anal or oral routes[21].
- Injury to the genital organs by nails, teeth, application of paste of poisonous insects, excess pressure to the private parts by hands.
- Indulging in sexual intercourse with lower animals such as sheep, cow or goat etc.
- Washing the penis with contaminated water[22].
- Vigorous kneading of penis[23].
- Controlling ejaculation[24].
- Not washing the external genitals soon after the sexual intercourse.

## Samprapti[25] of Upadamsha

**मेंढ्रमागम्य प्रकुपिताः दोषाः क्षतेंऽक्षतें वा श्वयथुमुपजनयन्ति॥**

Su.Ni. – 12/7

Vitiated *Dosha* will afflict the *Medhra* (penis) causes swelling. This may or may not be associated with wound.

## Sankhya Samprapti of Upadamsha

**5 types:** 1. *Vataja* 2. *Pittaja* 3. *Kaphaja*

4. *Raktaja* 5.*Sannipataja*

## Vataja Upadamsha

**सतोदभेदैः स्फुरणैः सकृष्णैः स्फोटैर्व्यवस्येत् पवनोपदंशम्।**

Ma.Ni. – 47/2

**तत्र वातिके पारुष्यं त्वक् परिपुटनं स्तब्धमेढ्रता परुषशोफता, विविधाश्च वातवेदनाः,**

Su.Ni. – 12/9

- Black coloured papules in the penis.
- Pricking or tearing type of pain.
- No movements of penis or priapism.
- Penis is coarse to touch.
- Different kinds of discomfort due to vitiation of *Vata Dosha.*

## Pittaja Upadamsha

**पीतैर्बहुक्लेदयुतैः सदाहैः पित्तेन**

Ma.Ni. – 47/2

**पैत्तिके ज्वरः, पक्वोदुम्बरसङ्काशस्तीव्रदाहः, क्षिप्रपाकः पित्तवेदनाश्च**

Su.Ni. – 12/9

- Yellowish coloured papules in the penis.
- More exudation from the ulcers.
- Burning sensation in the penis.
- Fever.
- Colour resembles the ripened fruit of *Udumbara.*
- Quick suppuration.
- Different kinds of discomfort due to vitiation of *Pitta Dosha.*

## Kaphaja Upadamsha

**सकण्डुरैः शोथयुतैर्महद्भिः शुक्लैर्धनैः स्त्रावयुतैः कफेन॥ 3॥**

Ma.Ni. – 47/3

**श्लैष्मिके श्वयथुः कण्डूमान् कठिनः स्निग्धः श्लेष्मवेदनाश्च**

Su.Ni. – 12/9

- Large papules in the penis.
- Itching
- Exudation of thick, viscous, unctuous, whitish discharge.
- Different kinds of discomfort due to vitiation of *Kapha Dosha*

## Raktaja Upadamsha

**रक्तात् पिशितावभासैः॥2॥**

---

**GK**

[19] In this instance, the lady may have spasm of perineal muscles leading to the condition called vaginismus because of lack of libido leading to poor vaginal lubrication, thus it may lead to injury to the vagina and penetration of penis in such situation may lead to the injury to the penis too.

[20] In this instance, the woman may have infection in the vagina and in such situation, if the male indulges in sexual act, there is a possibility of spread of infection.

[21] Oral cavity contains millions of organisms, such as firmicutes, proteobacteria, Bacteroidetes, actinobacteria, fusobacteria, tenericutes and TM7. Anal region contains huge number of pathogenic organisms including colonic bacilli. If an infected individual indulges in either oral sex or anal sex, he is likely to transfer the infection to the partner.

[22] In this instance, the person may have balanitis (inflammation of glans penis).

[23] This act may damage the organ.

[24] In this instance, the person may have presence of semen in the phallus and this may lead to the proliferation of infectious organisms in the male genital tract. Thus, the person may transfer the infection to the partner.

[25] When an individual is performing the foreplay before indulging in sexual intercourse, the person performs several actions during the foreplay. Stimulation of partner's genitals is one of the activity which is being termed as fellatio (oral stimulation of penis) and cunnilingus (oral stimulation of vulva and vagina).

- When the individual is biting the external genitals of the sexual partner, that is

स्फोटैः सकृष्णौ रुधिरं स्त्रवन्तं रक्तात्मकं पित्तसमानलिङ्गम्।

Ma.Ni. – 47/2,3

रक्तजे कृष्णस्फोटप्रादुर्भावोऽत्यर्थमसृक् प्रवृत्तिः पित्तलिङ्गान्यत्यर्थं ज्वरदाहौ शोषश्च याप्यश्चैव कदाचित्

Su.Ni. – 12/9

- Papules resemble the colour of muscles, blackish discolouration
- Exudation of blood
- Other clinical features of *Pittaja Upadamsha*
- This disease is manageable with difficulty, not a curable disease

## Sannipataja Upadamsha

नानाविधस्त्रावरुजोपपन्नमसाध्यमाहुस्त्रिमलोपदंशम्। Ma.Ni. – 47/4

सर्वजे सर्वलिङ्गदर्शनमवदरणं च शेफसः कृमिप्रादुर्भावो मरणं चेति॥

Su.Ni. – 12/9

- Appearance of symptoms of vitiation of all three *Dosha*
- Papules appear in penis
- Exudation of different kinds of discharges
- Various kinds of discomfort
- Penis becomes cracked, associated with *Krimi* and kills the person and this variety of *Upadamsha* is incurable.

## Asadhya Lakshana of Upadamsha

विशीर्णमांस क्रिमिभिः प्रजग्धं मुष्कावशेषं परिवर्जयेच्च॥4॥

Ma.Ni. – 47/4

प्रशीर्णमांसं कृमिभिः प्रजग्धं मुष्कावशेपं परिवर्जनीयम्।

BPM – 51/4

सञ्जातमात्रे न करोति मूढः क्रियां नरो यो विषये प्रसक्तः।
कालेन शोथक्रिमिदाहपाकैः प्रशीर्णशिश्नो म्रियते स तेन॥

BPM – 51/5

- The proliferation of *Krimi* around the genital organs and this growth of *Krimi* will lead to the destruction of *Mamsa* of the penis leaving only scrotum. This condition should be rejected
- Swelling of the penis
- Inflammation of the penis
- Burning sensation of the penis
- Suppuration of the penis
- Destruction of penis[26]

**Key summary of the chapter**

- The disease which is predominantly seen in the country called Phiranga (Portugal). Phiranga is first introduced by the people of Phiranga Desha (Portugal) to the people in our country. Hence, the name of this disease is Phiranga. It is also named as Gandharoga. This disease is manifested by the sexual intercourse by the people suffering from Phiranga with the people who are not suffering from it.
- As far as the pathogenesis of the disease is concerned, this is considered to be Agantuja or exogenous in origin. Clinical features can be observed first and vitiation of Dosha is observed after some period of time.
- As far as Sankhya Samprapti of Phiranga is concerned, this is of 3 types. Bahya, Abhyantara and Bahirabhyantara.
- Upadrava of Phiranga are
- कार्श्यं बलक्षयो नासाभङ्गो वह्नेश्च मन्दता। अस्थिशोषोऽस्थिवक्रत्वं फिरङ्ग उपद्रव अमी॥ BPM – 59/7 Karshya (emaciation), Balakshaya (loss of strength), Nasabhanga (deformity of the nose), Agnimandya (poor appetite), Asthi Shosha (dryness of bones) and Asthi Vakrata (deformities of bones).
- As far as Sadhyasadhyata of Phiranga is concerned, Bahya Phiranga, duration of the illness is short and not having any complications is easily curable. Abhyantara Phiranga is cured with difficulty. Whereas Bahirabhyantara type of Phiranga, duration of the illness is long or chronic in manifestation, disease seen in emaciated individuals and disease spread to other parts of the body is incurable.
- Upadamsha is the spectrum of diseases where the clinician will observe swelling in the penis and urethra or external genital organs due to external causes such as oral stimulus or biting with teeth etc. In this disease, there will be frequent injury to the external genital organs occurs which may or may not be associated with wound of the affected part.
- Due to the indulgence in excessive sexual activity or excess indulgence in oral sex, there will be vitiation of Dosha in the external genital organ leading to the swelling which may or may not be associated with wound.
- As far as Sankhya Samprapti of Upadamsha is concerned, 5 types of Upadamsha are explained. They are Vataja, Pittaja, Kaphaja, Raktaja and Sannipataja.
- The below mentioned features are considered to be indicative of Asadhyata (incurability) of the disease Upadamsha. They are the proliferation of Krimi around the genital organs and this growth of Krimi will lead to the destruction of Mamsa of the penis leaving only scrotum; swelling of the penis; inflammation of the penis; burning sensation of the penis; suppuration of the penis; destruction of penis.

---

[26] When these situations are associated with the patient suffering from Upadamsha, these will make the suffering person to perform sexual activity due to destruction of phallus or the person is unable to attain and maintain erection or the person may have painful erection.

## MCQs

1. **Gandharoga is another name of**
   a. Upadamsha; b. Phiranga;
   c. Shlipada; d. Romantika

*Answer*: (b)

2. **Phiranga is the name given to the disease because of**
   a. Similarity of the lesions with plant;
   b. Similarity of the lesions with leaf;
   c. The disease commonly seen in Phiranga place;
   d. None of the above

*Answer*: (c)

3. **Nasabhanga is considered to be ..................of Phiranga.**
   a. Nidana; b. Purvarupa;
   c. Rupa; d. Upadrava

*Answer*: (d)

4. **Which type of Phiranga has the clinical features similar to Amavata?**
   a. Bahya Phiranga; b. Abhyantara Phiranga;
   c. Vataja Phiranga; d. None of the above

*Answer*: (b)

5. **Which of the following type of Phiranga is considered as Sukhasadhya in nature?**
   a. Bahya Phiranga;
   b. Abhyantara Phiranga;
   c. Bahirabhyantara Phiranga;
   d. All of the above

*Answer*: (a)

6. **Sankhya Samprapti of Upadamsha is**
   a. 3; b. 4;
   c. 5; d. 7

*Answer*: (c)

7. **Which part of the body is afflicted in the patient of Upadamsha?**
   a. Oral cavity; b. Tongue;
   c. Teeth; d. Genitals

*Answer*: (d)

8. **The colour of the wound resembles the ripened fruit of Udumbara in which type of Upadamsha?**
   a. Vataja; b. Pittaja;
   c. Kaphaja; d. Sannipataja

*Answer*: (b)

9. **Stabdha Medhrata is the specific feature of which of the following type of Upadamsha?**
   a. Vataja; b. Pittaja;
   c. Kaphaja; d. Sannipataja

*Answer*: (a)

10. **Appearance of Krimi (worms) in the external genitals is seen in which type of Upadamsha?**
   a. Vataja; b. Pittaja;
   c. Kaphaja; d. Sannipataja

*Answer*: (d)

### Chapter resources

- https://www.sciencedirect.com/science/article/abs/pii/S1521693412001319
- https://www.jaypeedigital.com/eReader/chapter/9789385999550/ch1
- Bhava Prakasha, Madhyama Khanda, 59th chapter – Phiranga Rogadhikara
- www.pubmed.ncbi.nlm.nih.gov/31876867/
- www.ncbi.nlm.nih.gov/pmc/articles/PMC9768959/ about bone abnormalities
- www.caribbianmedstudent.com
- Madhava Nidana – 47th chapter – Upadamsha Nidana
- Sushruta Nidana Sthana 12th chapter – Vriddhi Upadamsha Shlipada Nidana
- Bhava Prakasha, Madhyama Khanda – 51st chapter
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Harrison's principles and practice of internal medicine by Anthony S Fauci et al, 17th edition, McGraw Hill Publications, New York, 2008

***

CHAPTER

55

# Syphilis and Gonorrhoea

**Learning Objectives**

- ⇨ To learn about syphilis and gonorrhea
- ⇨ To know about the causative factors of above said diseases
- ⇨ To learn about the clinical features of the above said diseases
- ⇨ To learn about the differential diagnosis of above said diseases
- ⇨ To know about the necessary physical examination performed in the patients
- ⇨ To learn about the laboratory investigations performed in the patients and interpreting the results of the laboratory investigations

## Introduction

Syphilis and gonorrhea are considered as sexually transmitted diseases (STD) as these diseases are transmitted to the non infected individual by the sexual contact of the infected individual. Syphilis is caused by spirochete Treponema pallidum. Gonorrhea is caused by bacteria Neisseria gonorrhoeae. Each of the infections are described separately.

Syphilis is characterized by 3 sequential clinical, symptomatic stages separated by periods of asymptomatic latent infection. Common manifestations include genital ulcers, skin lesions, meningitis, aortic disease and neurologic syndromes. Diagnosis is done by serologic tests and adjunctive tests selected based on the stage of the disease.

Gonorrhea infects the epithelia of urethra, cervix, rectum, pharynx or eyes causing irritation or pain and purulent discharge from the urethra or vagina. Dissemination to skin and joints, which is uncommon, causes sores on the skin, fever and migratory polyarthritis or pauciarticular septic arthritis. Diagnosis is done by microscopy, culture or nucleic acid amplification tests.

Now we are going to learn each of the infections in a little bit more detail.

## Syphilis

As it is being mentioned that this sexually transmitted infection is caused by Treponema pallidum, a spirochete that cannot survive outside the human body for long time. This microbe enters through mucous membranes of the skin, reaches the regional lymph nodes within hours and rapidly spread throughout the body.

- It is usually transmitted by sexual contact (genital, orogenital and anogenital), but may be transmitted nonsexually through skin contact or transplacentally. Risk of transmission is about 30% from a single sexual encounter with a person who has primary syphilis and 60 to 80% from an infected mother to a foetus.

## Stages of syphilis

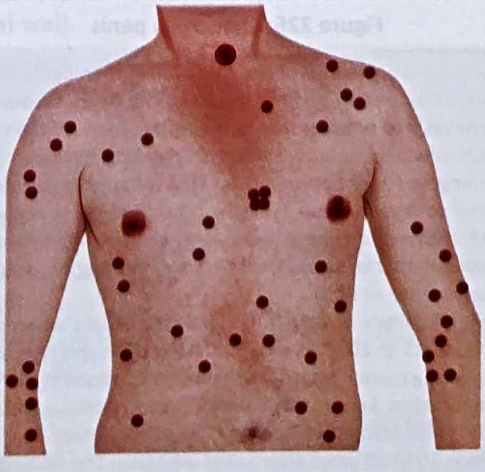


**Figure 225:** Features of syphilis

Syphilis occurs in primary, secondary and tertiary stages with long latent periods between them. Infected individuals are contagious during first two stages.

### Clinical features

Syphilis **(see Figure 225)** may manifest at any stage and may affect multiple or single organs, mimicking many other disorders. Syphilis may be accelerated by coexisting HIV infection, wherein eye involvement, meningitis and other neurologic complications are more common and more severe.

### Primary syphilis

- After an incubation period of 3 to 4 weeks, a primary lesion (chancr ) develops at the site of inoculation. The initial red papule quickly forms a chancre, usually a painless ulcer with a firm base; when rubbed, it produces a clear fluid containing numerous spirochetes. Chancres can occur in any part of the body, but are more common among the following:
  - Penis, anus and rectum in men
  - Vulva, cervix, rectum and perineum in women
  - Lips or mouth in either gender

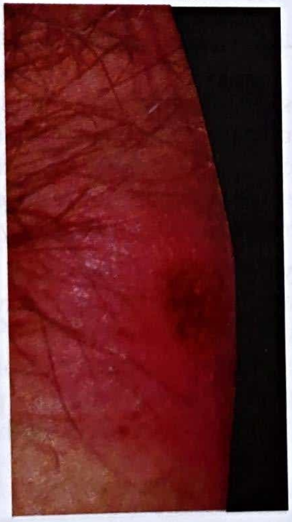


**Figure 226:** Chancre in penis

### Secondary syphilis

- The spirochetes spread in the blood stream, producing widespread mucocutaneous lesions, lymph node swelling and symptoms of other organs. Symptoms typically begin 6 to 12 weeks after the appearance of chancre. Fever, loss of appetite, nausea, and fatigue are common. Headache, hearing or balancing disturbances and pain in bones also occur.

### Tertiary or late syphilis

- About 1/3rd of untreated people develop late syphilis, although not until years to decades after the initial infection. Lesions may be clinically classified as benign tertiary syphilis, cardiovascular syphilis or neurosyphilis.
- **Benign tertiary gummatous syphilis:** usually develops within 3 to 10 years of infection, may involve the skin, bones and internal organs. Gummas are soft, destructive, inflammatory masses that are typically localized but may diffusely infiltrate an organ or tissue; they grow and heal slowly and leave scars.
- **Benign tertiary syphilis of bone:** results in either inflammation or destructive lesions that cause a deep, boring pain, characteristically worse at night.
- **Cardiovascular syphilis:** usually manifests 10 to 25 years after the initial infection as aneurysmal dilatation of ascending aorta, insufficiency of aortic valve, or narrowing of coronary arteries. Pulsations of dilated aorta may cause symptoms by compressing or eroding adjacent structures in the chest. Symptoms produced may be brassy cough, infections and breathing discomfort secondary to compression of trachea, hoarseness of voice due to vocal cord paralysis and painful erosion of sternum and spine.
- **Neurosyphilis:** This can manifest in several forms:
  1. Asymptomatic neurosyphilis[1]
  2. Meningovascular neurosyphilis[2]
  3. Parenchymatous neurosyphilis[3]
  4. Tabes dorsalis[4]

---

**GK**

[1] Asymptomatic neurosyphilis: causes mild meningitis in about 15% of the cases originally diagnosed as latent syphilis; in 25 to 40% of the cases as secondary syphilis; in 12% of the cases, cardiovascular syphilis and in 5% of the cases, benign tertiary syphilis. Without treatment, it evolves into symptomatic neurosyphilis in 5% of the cases. If CSF examination does not detect the evidence of meningitis 2 years after the initial infection, neurosyphilis is less likely to develop.

[2] Meningovascular neurosyphilis: This variant of the infection results from inflammation of large to medium sized arteries of the brain or spinal cord; symptoms typically occur 5 to 10 years after infection and range from none to stroke. Initial symptoms include headache, neck stiffness, dizziness, behavioral abnormalities, poor concentration, memory loss, lassitude, insomnia and blurred vision. Spinal cord involvement may cause weakness and wasting of shoulder girdle and arm muscles, slowly progressive leg weakness with urinary or faecal incontinence or both.

[3] General paresis or dementia paralytica results when chronic meningo encephalitis causes destruction of cortical parenchyma. It usually develops15 to 20 years after initial infection and typically does not affect individuals before 40s or 50s. behavior progressively deteriorates, mimicking mental disorder or dementia. Irritability, difficulty in concentration, memory disturbances, headache, insomnia, fatigue, lethargy are common. Seizures, aphasia or transient hemiparesis are possible.

[4] This is also termed as locomotor ataxia, involves slow, progressive degeneration of the posterior columns and nerve roots. It typically develops 20 to 30 years after initial infection. The earliest characteristic symptom is an intense, stabbing pain in the back and legs that recurs irregularly. Gait ataxia, hyperesthesia and paraesthesia may produce sensation of walking on foam rubber. Urine retention, urine incontinence, recurrent infections and erectile dysfunction may be associated along with this disease.

Diagnosis is done by VDRL (Veneral Disease Research Laboratory) test.

Syphilis is suspected in patients with mucocutaneous lesions or unexpected neurologic disorders.

## Gonorrhoea

As stated earlier, gonorrhea is mainly caused by Neisseria gonorrhoeae and is almost always transmitted by sexual contact.

Urethral and cervical infections are common, but infection in pharynx or rectum occur after oral or anal intercourse, and conjunctivitis may follow after contamination of the eye.

After an episode of vaginal intercourse, likelihood of transmission from women to men is about 20%, but from men to women, it may be higher.

Neonates can acquire conjunctival infection during the passage through birth canal, and children may acquire the infection through sexual abuse.

In about 10-20% of the women, cervical infection may ascend via endometrium to the fallopian tubes and pelvic peritoneum leading to the manifestation of pelvic inflammatory disease (PID).

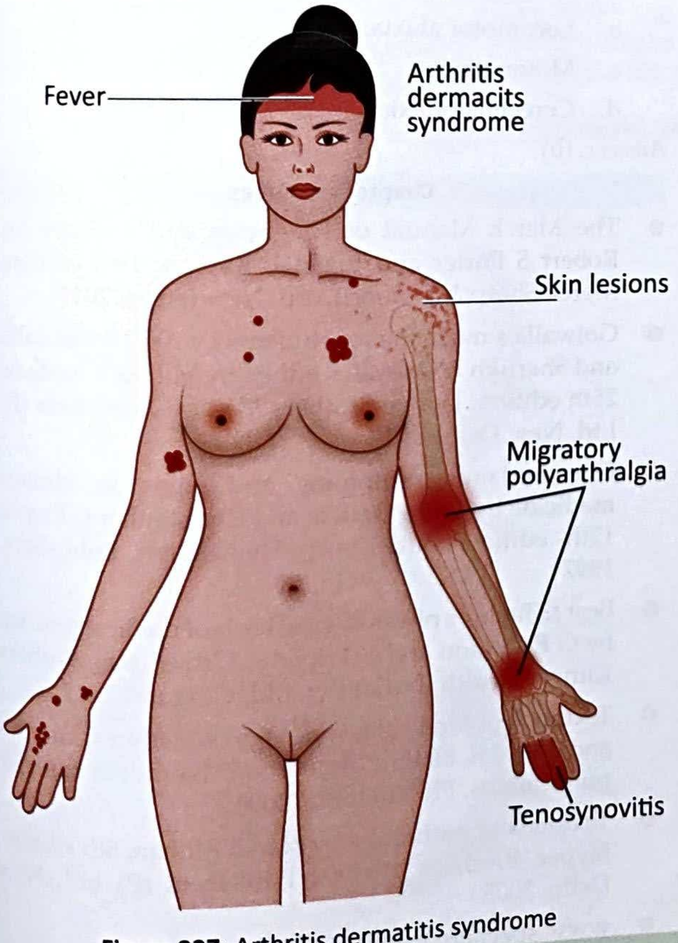


**Figure 227:** Arthritis dermatitis syndrome

- **About 10-20%** of the infected women and very few infected men are asymptomatic. About 25% of the men will have minimum symptoms. Following are the symptoms observed in the patients suffering from gonorrhea.
- **Male urethritis:** has an incubation period of 2-14 days. Onset is usually marked by mild discomfort in the urethra, followed by more severe penile tenderness and pain, dysuria and a purulent discharge.

  Urinary frequency and urgency may develop as the infection spreads to the posterior urethra. Examination detects a purulent, yellow-green urethral discharge, and the meatus may be inflamed.
- **Epididymtis:** usually causes unilateral scrotal pain, tenderness and swelling.
- **Cervicitis:** usually has an incubation period of > 10 days. Symptoms range from mild to severe and include dysuria and vaginal discharge.

  During pelvic examination, clinician may notice a mucopurulent or purulent cervical discharge, and cervical os may be red and bleed easily when touched with the speculum.

  Urethritis may occur concurrently; pus may be expressed from the urethra when the symphysis pubis is pressed.
- **Pelvic inflammatory disease (PID):** occurs in 10-20% of infected women. PID may include salpingitis (inflammation of fallopian tubes), pelvic peritonitis, and pelvic abscesses, may lead to lower abdominal tenderness, dyspareunia (painful intercourse), marked tenderness on palpation of abdomen, adnexae or cervix.
- **Rectal gonorrhea:** is usually asymptomatic. It occurs predominantly in men practicing receptive anal intercourse and it can occur in women who participate in anal sexual intercourse. Symptoms include rectal itching, a cloudy rectal discharge, bleeding and constipation. Examination with a proctoscope may detect erythema or mucopurulent exudate on the rectal wall.
- **Gonococcal pharyngitis:** is usually asymptomatic but may cause sore throat. This occurs as a result of couple involving oral sex (either phellatio or cunnilingus) with infected individual.

## Diagnosis

- Gram staining and culture[5] of genital fluids, blood or joint fluids
- Nucleic acid based testing[6] of genital fluids, blood or joint fluids

---

GK

[5] Gram stain is sensitive and specific for gonorrhea in men with urethral discharge; gram negative intracellular diplococci are seen. Culture is sensitive and specific, but because gonococci are fragile and fastigious, sample

[6] Nucleic acid based testing may be done on genital, rectal or oral swabs.

### Key summary of the chapter

- Syphilis and gonorrhea are categorized under sexually transmitted diseases (STD) as these are transmitted through sexual contact.
- Treponema pallidum, a kind of spirochete responsible for the transmission of syphilis and gonorrhea is transmitted by bacteria, Neisseria gonorrheae.
- Apart from the symptoms of reproductive system, these diseases are responsible for other systemic symptoms involving nervous system, integumentary system, urinary system.
- VDRL test is performed to confirm the diagnosis of syphilis; gram staining, culture and nucleic acid based tests are performed to confirm gonorrhea.

### MCQs

**1. VDRL test is done to confirm the diagnosis of**

a. Gonorrhea; b. Syphilis;
c. Dermatitis; d. AIDS

*Answer*: (b)

**2. Syphilis is often called as**

a. The invisible dictator;
b. The terrorizing emperor;
c. The great imitator;
d. The great terminator

*Answer*: (c)

**3. Treponema pallidum, a causative organism of syphilis is**

a. Bacteria; b. Virus;
c. Fungus; d. Spirochete

*Answer*: (d)

**4. Tabes dorsalis, a clinical condition manifested in the patient suffering from**

a. Syphilis;
b. Gonorrhea;
c. Both a and b;
d. None of the above

*Answer*: (a)

**5. Chancre of syphilis is found in**

a. Throat, chest area and vagina;
b. Genitals only;
c. Buttocks, back, arms and legs;
d. Genitals, anus, rectum, vagina, lips and mouth

*Answer*: (d)

**6. Gonorrhea is caused in the human beings is a type of**

a. Virus; b. Bacteria;
c. Fungus; d. Actinomycetes

*Answer*: (b)

**7. Primary, secondary and tertiary are the types of**

a. Gonorrhea; b. Filariasis;
c. Syphilis; d. Pemphigus vulgaris

*Answer*: (c)

**8. Incubation period of primary syphilis is**

a. 1 to 6 weeks; b. 3 to 4 weeks;
c. 6 to 8 weeks; d. 8 to 10 weeks

*Answer*: (b)

**9. Chancre is a type of skin lesion seen in which of the following conditions?**

a. Syphilis;
b. Filariasis;
c. Pemphigus vulgaris;
d. Scarlet fever

*Answer*: (a)

**10. Tabes dorsalis is also termed as**

a. Sensory ataxia;
b. Locomotor ataxia;
c. Motor ataxia;
d. Cerebellar ataxia

*Answer*: (b)

### Chapter resources

- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2005
- www.specialty.medicaldialogues.in
- www.wikipedia.org
- www.amboss.com

***

## CHAPTER

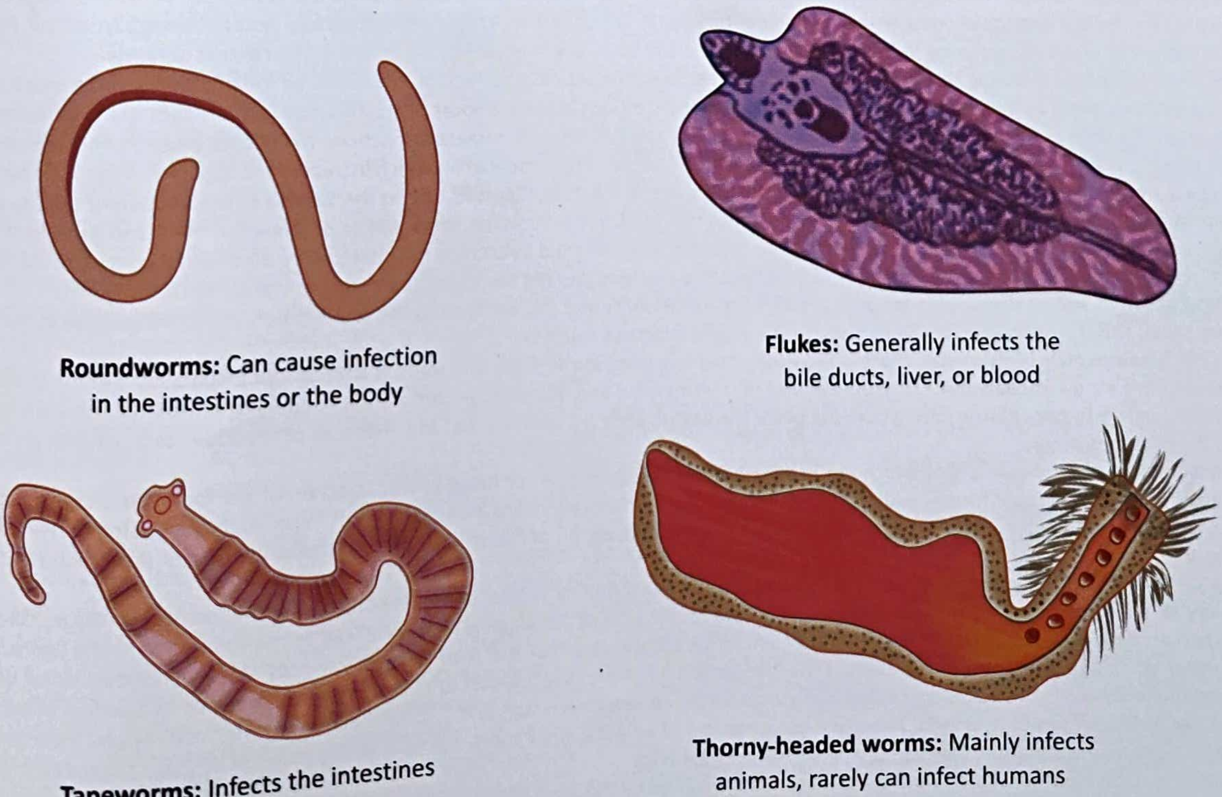
## 56

# Krimiroga

## Learning Objectives

- ⇨ To understand the concept of Krimi
- ⇨ To understand the Nidana Panchaka of Krimi mentioned in Ayurveda literatures
- ⇨ To understand the relation between Nidana, Lakshana and Upadrava with fundamentals of physiology and pathology
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease

Krimi (Helminthes or worms) are very important among the infectious agents as they are responsible wide range of diseases in the living beings. They have large variation in size, complex life cycles and migratory habits. They may be visible or invisible to the eyes. Depending upon the following derivation, *Krimi*, the one living being which moves around or which thrives on flesh and moves around.



**Types of Helminths (Parasitic Worms)**

**Roundworms:** Can cause infection in the intestines or the body

**Flukes:** Generally infects the bile ducts, liver, or blood

**Tapeworms:** Infects the intestines

**Thorny-headed worms:** Mainly infects animals, rarely can infect humans

**Figure 228:** Types of Krimi

## Nirukti

- *Krimi* is derived from क्रम् *Dhatu*
- क्रम् - पादविक्षेपः that means which moves with legs or limbs
- भ्रमे संप्रसारणेन च that which moves around (*Amarakosha*)
- क्रामति इति कृमिः (शब्दकल्पद्रुम) – the one which is moving

## Definition of Krimi

- क्रव्ये मेध्याति क्रमते वा स्यात् सरणकर्मणः क्रामते वा।। यक्षाचार्य means the one which thrives in *Kravya* (flesh) and performs movements is *Krimi.*

## Samanya Nidana of Krimi

**अजीर्णाध्यशनासात्म्यविरुद्धमलिनाशनैः।**
**अव्यायाम दिवास्वप्नगुर्वतिस्निग्धशीतलैः॥3॥**
**माषपिष्टान्नविदलबिसशालूकसेरुकैः।**
**पर्णशाकसुराशुतदधिक्षीरगुडेक्षुभिः॥4॥**
**पललानूपपिशितपिण्याकपृथुकादिभिः।**
**स्वाद्वम्लद्रवपानैश्च श्लेष्मा पित्तं च कुप्यति॥5॥**

Su.Ut. – 54/3-5

अजीर्णभोजी मधुराम्लनित्यो द्रवप्रियः पिष्टगुडोपभोक्ता।
व्यायामवर्जी च दिवाशयानो विरुद्धभुक् संलभते क्रिमींस्तु॥4॥

Ma.Ni. – 7/4

- **Ajirna**[1] – when the individual is suffering from either *Amajirna* due to the vitiation of *Kapha Dosha* or *Vidagdhajirna* due to the vitiation of *Pitta Dosha*
- **Adhyashana** [2] – frequent consumption of food prior to the digestion of previously ingested meals
- **Asatmya Bhojana** – frequent consumption of unaccustomed food substances
- **Viruddha Bhojana** – frequent consumption of incompatible food substances
- **Malina Bhojana**[3] – frequent consumption of contaminated food substances
- **Avyayama** – not doing any of the physical activity
- **Divasvapna**[4] – sleeping during day time
- **Guru Bhojana**[5] – frequent consumption of substances which are heavy to digest
- **Snigdha Bhojana**[6] – frequent consumption of substances which are unctuous in nature
- **Shitala Bhojana**[7] – frequent consumption of substances which are cold in nature

---

GK

[1] When an individual is having Ajirna (indigested state), that will lead to proliferation of the microorganisms in the stomach. These microorganisms may enter the stomach through either poor oral hygiene or through contaminated food. Most of the individuals in India are having the carbohydrate rich diet which is considered to be major source of multiplication of microbes in the stomach. This may increase the infection in the stomach. As there is increased time period for the closure of pyloric antrum, these microorganisms proliferated in the stomach may cause gastric mucosal damage, so that macromolecules and intermediate molecules retained in the stomach because of poor digestive juice may enter the interstitial compartment of alimentary canal, which further enters into circulatory system through lymphatic system.

[2] The pathological events occurring in this type of exposure is similar to the mechanism described in the context of Ajirna.

[3] When an individual is having the excess exposure to these kinds of aetiological factors, there will be inflammation of the mucosa of the stomach takes place as these substances may be stored in the stomach at least 2 hours or so. This may further leads to the inflammation of the small intestine as they start to move into lower alimentary canal. These inflammatory reactions will release inflammatory markers which are nothing but proteins, which attract more amount of fluid portion from capillaries, which increases the capacity of the stomach, and as there is more alkalinity of the gastric juice, the substances are not getting digested due to the persistent inactivation of pepsinogen into pepsin. Due to the persistent indigestion of carbohydrate rich food, in the stomach, there will be proliferation of microorganisms leading to infection. But infection occurs in the stomach more frequently as the food substance may have more duration of contact to the inflamed tissue, which further leads to the transport of inflammatory markers into the blood via absorption in the stomach.

[4] These activities will be responsible for poor gastro intestinal motility and this will lead to the proliferation of microorganisms in the alimentary canal. This is responsible for the damage to the gastro intestinal mucosa.

As per fundamentals of Ayurveda, there is increase of Guru quality in the body and there is decrease of Chala quality in the body. Due to these activities, the conversion of macromolecules to intermediate and micro molecules are not happening.in the stomach and small intestine secondary to poor gastric juice where the pH of the gastric juice will become alkaline.. Because of the above said reasons, proliferation of the microbes occurs.

[5] Consumption of food substances which are heavy to digest is responsible for delay in the digestion of the food and there is poor gastro intestinal motility which is further leading to the proliferation of microorganisms in the alimentary canal leading to gastro intestinal mucosal damage. From the point of western physioilogy point of view, conversion of macro molecules into intermediate or micromolecules will not occur.

As per Ayurveda fundamentals, the excess consumption of Guru quality substances is responsible for the increase of Guru quality in the body. When we think of the analysis of Dosha, exposure to this kind of aetiological factor will lead to the vitiation of Kapha Dosha.

[6] When an individual consumes more amount of unctuous substances, that will lead to the heaviness of the alimentary canal which will further leading to poor intestinal motility. Thus, the person will have proliferation of microorganisms develops as a sequel of poor gastro intestinal motility. In this occasion, reason is attributable to the non conversion of macro molecules into intermediate and micro molecules. As per fundamentals of Ayurveda, increased consumption of Snigdha substances will lead to the increase of Snigdha quality in the body, thus there will be abnormal increase of Kapha Dosha in the body.

[7] When an individual consumes Shita substances, that will lead to the poor blood circulation to the alimentary canal, thereby there is decreased digestive juices in the stomach and small intestine. This leads to the proliferation of microorganisms in the stomach and small intestine as there is poor secretion of hydrochloric acid which is fundamental to any of the anti infectious activities in the alimentary canal

- **Masha, Pishtanna, Vidala, Bisa, Shaluka Seruka**[8] – substances which are prepared from blackgram, corn flour or any kind of flour, pulses, *Bisa*, *Shaluka* and *Kaseruka*
- **Parna Shaka**[9] – leafy vegetables
- **Sura, Shukta, Dadhi, Kshira, Guda and Ikshu**[10] – consumption of intoxicating substances such as *Sura*, *Shukta*, curds, milk, jaggery and sugarcane and sugarcane products
- **Palala** [11] – consumption of paste of sesamum seeds
- **Anupa Pishita**[12] – consumption of meat of animals of marshy lands
- **Pinyaka and Prithuka** – excess consumption of these substances
- **Svadu and Amla Rasa Sevana**[13] – consumption of substances having sweet and sour taste
- **Drava Pana**[14] – excess consumption of liquid substances

## Krimi as a cause of contagious disease[15]

प्रसङ्गाद्गात्रसंस्पर्शान्निःश्वासात्सहभोजनात्।
सहशय्यासनाच्चापि वस्त्रमाल्यानुलेपनात्॥3 3॥ Su.Ni. – 5/33

- **Prasanga** – sexual contact
- **Gatra Samsparsha** – touching the contaminated parts of the body
- **Nishvasa** – inhaling the contaminated air or breath of infected individual
- **Sahabhojana** – consuming the food together
- **Saha Shayya** – sharing the bed with infected individual
- **Saha Asana** – sitting together
- **Vastra Malanulepana** – sharing the clothes, garlands and ornaments of infected individual

## Vishesha Nidana of Krimi

माषपिष्टाम्ललवणगुडशाकैः पुरीषजाः।
मांसमत्स्यगुडक्षीरदधिशुक्तैः कफोद्भवाः॥5॥

---

and the main content of most of the individual is carbohydrate rich diet. microorganisms proliferate very easily and rapidly in carbohydrate rich diet.
As per fundamentals of Ayurveda, there is increase of Shita quality occurs as a result of excess consumption of Shita substances by an individual. This will lead to the abnormal increase of Kapha Dosha in the body.

[8] All the above said substances are having Guru, Snigdha, Shita qualities and Madhura Vipaka. As per the fundamentals of Ayurveda, the person will have abnormal increase of Kapha Dosha. As per the principles of western physiology, because of the consumption of the substances having above said qualities, there will be poor peristaltic movement in the alimentary canal which in turn is responsible for the proliferation of microorganisms in the alimentary canal. This event in turn is responsible for the damage of the mucosa of the alimentary canal. For example, oral mucosa can be damaged if proper oral hygiene after food intake is not followed appropriately. Most of the Indians are having carbohdyrate rich diet. Rapid multiplication of microorganisms is likely to occur secondary to poor oral hygiene or excess carbohydrate diet intake. Thus, mucosal damage can occur in any part of the alimentary canal.

[9] In this occasion, the term leafy vegetables consumption can be attributable to presence of worms in the leaf of vegetables or spoilt vegetables. Thus, improper washing of leafy vegetables may be the probable reason for the exposure of Krimi in susceptible individuals.

[10] Consumption of these substances may lead to depletion of accumulated fat from different parts of the body as the person is consuming less carbohydrate rich substances. initially, this will lead to the causation of inflammation, as these substances causing irritation to the gastrointestinal mucosa. When an individual consumes macronutrient diet, then that will lead to the occurrence of infection because of poor dental hygiene and consumption of macronutrients, glucose in particular. Thus, entry of microorganisms in this occasion will lead to the proliferation of the microorganisms with less resistance from the body due to reduced immunity. These substances which are causing intoxication are usually responsible for the inflammation of the alimentary canal as these substances are having Amla Rasa, Laghu Guna and Amla Vipaka. When inflammation starts in the alimentary canal, that will lead to the damage of the mucosa of the alimentary canal.

[11] Excess consumption of sesamum seeds leads to the vitiation of Pitta Dosha in the body. Excess vitiation of Pitta and Kapha Dosha will lead to the manifestation of Krimi in the healthy or diseased individual. This is attributable to the inflammation of the alimentary canal which further leads to the damage of the gastrointestinal mucosa.

[12] When an individual consumes meat of animals of marshy animals will lead to the increase of Kapha Dosha in the body. Further, there are other reasons for the multiplication of microorganisms, i.e. improperly cooked meat by an individual.

[13] Excess consumption of Madhura and Amla Rasa substances will lead to the increase of Kapha Dosha in the body. The consumption of sweet substances will be the breeding diet for the proliferation of microorgansims and consumption of sour substances will lead to the inflammation of sour substances in the alimentary canal, thereby results in the poor immunity of the individual.

[14] Excess consumption of Drava (liquid) substances will lead to the increase of Drava quality in the body. This will lead to the dilution of gastric juice (dilution of hydrochloric acid) which in turn is responsible for inactivation of pepsinogen. It is being said that the optimum range of pH of gastric juice for the activation of pepsinogen into pepsin is 1.9 to 3.8; pH beyond 3.8 leading to the movement of gastric juice towards alkalinity, will lead to the multiplication of microbes in the alimentary canal. Thus, excess liquid consumption will lead to the proliferation of microorganisms in the stomach leading to the progression of infective pathology.

[15] These are the different routes of entry of microorganisms into the body. As per the description of Sushruta, urethra, vagina, skin contact, expired air, certain habits where there is increased risk of contagious disease manifestation such as consuming food together (through alimentary canal), sleeping and sitting together (through skin).
As per current understanding, all natural orifices present in the body such as mouth, nostrils, eyes, ears, anus, urethra, and in females, vagina and nipples are sources of entry of microorgansims if proper care of these orifices are not being done. If there is any cut in the skin of the infected individual, may lead to proliferation of infection and if such individual is having contact with the person who is having cut in the skin may lead to spread of infection.

**विरुद्धाजीर्णशाकाद्यैः शोणितोत्था भवन्ति हि।** Ma.Ni. – 7/5,6

*Purishaja Krimi* are produced by excess consumption of blackgram items, flour items, sour and salty substances, substances prepared by jaggery.

*Kaphaja Krimi* are proliferated by excess consumption of flesh, fishes, jaggery, products prepared by milk and curds and Shukta, a intoxicating substance.

*Raktaja Krimi* are proliferated by excess consumption of non homologous substances, consumption of food substances in case of state of indigestion.

## Samprapti of Krimi

**स्वाद्वम्लद्रेवपानैश्च श्लेष्मा पित्तं च कुप्यति॥5॥**
**कृमीन् बहुविधाकारान् करोति विविधाश्रयान्।**
**आमपकाशये तेषां प्रसवः प्रायशः स्मृतः॥6॥** Su.Ut. – 54/5-6

- There will be the vitiation of *Kapha* and *Pitta*
- This is leading to genesis of various kinds of *Krimi* which are having different forms or shapes, localizing in different sites.
- *Amashaya* is the site of *Shleshmaja Krimi, Pakvashaya* is the seat of *Purishaja Krimi* and *Dhamani* is the seat of *Raktaja Krimi.*

## Samprapti Ghataka of Krimi

**Dosha :** *Kapha* and *Pitta Dosha*
**Dushya** : *Rasa, Rakta, Purisha*
**Srotas** : *Rasavaha, Raktavaha, Purishavaha Srotas*
**Srotodushti Prakara:** *Sanga, Vimargagamana*
**Agni** : *Jatharagnimandya* followed by *Rasa* and *Rakta Dhatvagnimandya*
**Ama** : *Jatharagnimandyajanya Ama*
**Udbhava Sthana :** *Amashaya* (*Shleshmaja* and *Raktaja Krimi*) and *Pakvashaya* (*Purishaja Krimi*)
**Sanchara Sthana :** *Sarvasharira*
**Vyakta Sthana :** *Tvak, Guda, Vaktra*
**Rogamarga :** *Abhyantara* and *Bahya Rogamarga*
**Sadhyasadhyata :** *Keshada* and *Romada* varieties of *Krimi* are incurable and rest of the *Krimi* are curable.

## Types of Krimi

- *Sankhya Samprapti* of *Krimi* as per *Charaka, Sushruta* and *Madhava Nidana* is 20. There is difference of opinion among sub types.
- **2 types:**
  - **Vaikarika –** pathogenic
  - **Sahaja –** non pathogenic
- **2 types of Vaikarika Krimi:**
  - **Bahya –** 2
  - **Abhyantara –** 18
- **20 types:**
  - **Bahya –** 2: *Yuka* and *Pipilika*
  - **Shonitaja –** 6: take shelter in *Raktavahi Dhamani; Keshada, Lomada, Lomadvipa, Saurasa, Audumbara, Jantumatara*
  - **Shleshmaja –** 7: take shelter in *Amashaya; Antrada, Udarada, Hridayachara, Churu, Darbhapushpa, Saugandhika, Mahaguda*
  - **Purishaja –** 5: take shelter in *Pakvashaya; Kakeruka, Makeruka, Leliha, Sashula, Sausurada*
- As per *Sushruta*, 20 types of *Krimi* are subdivided into 3 categories.
  - **Purishaja Krimi –** 7: *Ajava, Viyava, Kipya, Chipya, Gandupada, Chooru, Dvimukha*
  - **Kaphaja Krimi –** 5: *Darbhapushpa, Mahapushpa, Praluna, Chipita, Pipilika, Daruna*
  - **Shonitaja Krimi –** 7: *Keshada, Romada, Nakhada, Dantada, Kikkisa, Kushthaja, Parisarpa*

## Samanya Lakshana of Abhyantara Krimi

**( ज्वरो विवर्णता शूलं हृद्रोगः सदनं भ्रमः॥1 8॥**
**भक्तद्वेषोऽतिसारश्च संजातकृमिलक्षणम्। )**
Su.Ut. – 54/18-19; Ma.Ni. – 7/6,7

- **Jvara**[16] **:** Raised body temperature
- **Vivarnata**[17] **:** Discolouration of the body

---

**GK**

[16] As stated earlier in the textbook, any conditions which lead to either increased heat production or reduced heat loss from the body will lead to the raise of body temperature. Depending upon the exposure of microorganism into the body through any route will lead to the proliferation of microbes and later that will lead to the increase of WBCs in the body. This event is responsible for the action of WBCs on microbes and this will be responsible for the raised body temperature. This situation will alter the Sterling forces, leading to sludging of blood and thus the affected region will have swelling of the region.

Any conditions which lead to septicemia or septic shock (this can be attributable to Shonitaja Krimi) such as

- Peritonitis caused by spread of infection from uterus and uterine tubes and sometimes caused by instrumental abortion under unsterile condition
- Peritonitis caused by rupture of gastro intestinal tract or caused by intestinal disease or caused by wounds
- generalised bodily infection resulting from spread of skin infection such as streptococcal or staphylococcal infection
- generalised gangrenous infection resulting from gas gangrene bacilli, spreading first through peripheral tissues and finally by way of the blood to the internal organs, liver in particular
- Infection spreading into the blood from the kidney or urinary tract, often caused by colon bacilli

[17] when an individual is having uncontrolled infection which can enter through any of the natural orifices or through trauma, following mechanisms are observed in the individuals.

1. High grade of fever

- **Shula**[18] : Pricking type of pain
- **Hridroga**[19] : Heart disease
- **Sadana**[20] : Sluggish movement of the body
- **Bhrama**[21] : Giddiness
- **Bhaktadvesha**[22] : Aversion to consume food substances
- **Atisara**[23] : Diarrhoea

## Bahya Krimi

तत्र मलो वाह्यश्चाभ्यन्तरश्च।

तत्र बाह्यमलजा- तान मलजान् संचक्ष्महे।

तेषां समुत्थानं सृजाव- र्जनं स्थानं - केशश्मश्रुलोमपक्ष्मवासांसि संस्था- नम् - अणवस्तिलाकृतयो बहुपादाश्चः वर्णः कृष्णः, शुक्लश्च; नामानियूकाः, पिपीलिकाश्च प्रभावः-2 कण्डूजननं, कोठपिडकाभिनिर्वर्तनं च; चिकित्सितं तु खल्वेषामपकर्षणं, मलोपघातः, मलकराणां च भावानामनुपसेवन मितिा॥1 0॥

Ca.Vi. – 7/10

तिलप्रमाणसंस्थानवर्णाः केशाम्बराश्रयाः॥2॥
बहुपादाश्च सूक्ष्माश्च युका लिक्षाश्च नामतः। Ma.Ni. – 7/2-3
द्विधा ते कोठपिडकाकण्डूगण्डान् प्रकुर्वते॥3॥ Ma.Ni. – 7/3
अजीर्णभोजी मधुराम्लनित्यो द्रवप्रियः पिष्टगुडोपभोक्ता।
व्यायामवर्जी च दिवाशयानो विरुद्धभुक् संलभते क्रिमींस्तु॥4॥

Ma.Ni. – 7/4

- *Bahya Krimi* are *Tila* (sesamum) seed sized and similar in shape and colour, which are harboured in hairs and clothes, have multiple limbs, and microscopic or minute in appearance. They lead to the urticarial maculo-papular rashes, pustules, itching and hard lesion.
- These *Krimi* are manifested due to the excess consumption in the stage of *Ajirna* (indigestion),

---

2. Marked vasodilatation throughout the body, especially in the infected tissues.
3. High cardiac output in perhaps half of the patients, caused by arteriolar dilatation in the infected tissues and by high metabolic rate and vasodilatation elsewhere in the body, resulting from bacterial toxin stimulation of cellular metabolism and from high body temperature.
4. Sludging of the blood, caused by red cell agglutination in response to degenerating tissues
5. Development of micro clots in widespread areas of the body, a condition called disseminated intravascular coagulation. This will lead to the usage of blood clotting factors to be used up, so that bleeding occurs in many tissues, especially in the gut wall of the intestinal tract.

Here Vivarnata refers to the discolouration of the skin in the form of redness of the region or yellowish as a result of accumulation of pus and subcutaneous tissues which manifest as a result of development of either purpuric patches etc.

[18] The term Shula refers to pricking type of pain. When an individual is having intestinal worms, he will have pricking type of pain in the abdominal region. If he has infection in the skin, he will have inflammation in the skin which may be presented with pricking type of pain in the skin. As these worms may accumulate in the small or large intestine, this may lead to partial or complete intestinal obstruction, which leads to colikcy type of pain in the abdominal region.

[19] This can be attributable to cardiogenic shock or hypovolemic shock. This may be manifested due to shift of the more amount of the fluid to the afflicted part.

[20] The term Sadana refers to sluggish movements of the body parts. When an infection occurs inside the body, that will lead to the poor blood flow in the small blood vessels in the circulatory system. This is called sludging of blood. In this situation, there will be continuation of tissue metabolism despite poor blood flow leading to large amount of acids – carbonic acid and lactic acid to accumulate locally enhancing the local acidity of the tissues. This acid along with other degeneration products from the ischemic tissues causes local blood agglutination. Thus, the person will have poor blood movement along the body, leading to the sluggish movement of the body parts.

The probable causes of septic shock are

- Cardiac depression or poor contractility of myocardial muscles by release of endotoxin
- Vasomotor failure
- Slugged blood – poor blood flow
- Increased capillary permeability
- Release of toxins by ischemic tissue
- Generalised cellular deterioration
- Development of acidosis either lactic acidosis or excess concentration of carbonic acid in the body

[21] This is attributable to the development of hypovolemic shock. This may occur as a result of poor cerebral blood flow which results in the manifestation of syncopal attacks. This is manifested due to the sludging of blood (poor blood flow in the circulatory system).

Probable causes of this type of shock (hypovolemia induced) are

- Excessive sweating
- Fluid loss in severe diarrhoea or vomiting
- Excess loss of fluid by nephrotic kidneys
- Inadequate intake of fluids and electrolytes
- Destruction of adrenal cortex with loss of aldosterone secretion

[22] This can be attributable to dilution of gastrointestinal secretion. This further leads to the proliferation of microorganisms in the alimentary canal. This further leads to the occurrence of gastric mucosal damage leading to the poor gastrointestinal secretion may lead to the aversion to consume food substances.

[23] This can be attributable to the proliferation of microorganisms in the lower alimentary tract. This will lead to the inflammation of the small and large intestines which further leads to the excess secretion of the small and large intestinal secretions which is responsible for increase of bulk of faecal matter. As there is inflammation in large intestine, there will be increased peristaltic movements are seen, this will lead to the occurrence of diarrhoea.

excess consumption of *Madhura* (sweet), *Amla* (sour) *Rasa* substances, excess consumption of *Drava* (liquid) substances, excess consumption of substances prepared from flour and jaggery, the people who are averse to do physical activities and sleeping in day time and the people who has the habit of incompatible substances.

## Kaphaja Krimi

श्लेष्मजाः क्षीरगुडतिलमत्स्यानूपमांसपिष्टान्नप- रमान्नकुसुम्भस्नेहाजीर्णपूर्ति क्लिन्नसंकीर्णविरुद्धासात्म्यं भोजन समुत्थानाः तेषामामाशयः स्थानं, प्रवर्धमानास्तूर्ध्वमधो वा विसर्पन्त्युभयतो वाः संस्थान वर्णविशेषास्तु- श्वेताः पृथुब्रध्नसंस्थानाः केचित् केचिद्वृत्तपरिणाहा गण्डूपदाकृतयः श्वेतास्तानावभासाश्च केचिदणवो दीर्घास्तन्त्वाकृतयः श्वेताः तेषां त्रिविधानां श्लेष्मनिमित्तानां क्रिमीणां नामानि - अन्नादाः, उदरादाः, हृदयंचराः, चुरवः, दर्भपुष्पाः, सौगन्धिकाः, महागुदाश्चेति प्रभावो- हृल्लासः, आस्यसंस्त्रवणम्, अरोचकाविपाकौ, ज्वरः, मूर्च्छा, जृम्भा, क्षवथुः, आनाहः, अङ्गमर्दः, छर्दिः का, पारुष्यं चेति॥12॥ Ca.Vi. – 7/12

## Nidana of Kaphaja Krimi

मांसमत्स्यगुडक्षीरदधिशुक्तैः कफोद्भवाः॥5॥ Ma.Ni. – 7/5

Consumption meat, fish, jaggery, milk and milk products, curds, alcoholic beverages in excess are mentioned as the causative factors for the growth of *Kaphaja Krimi* in the body.

## Lakshana of Kaphaja Krimi

हृल्लासमास्यस्त्रवणमविपाकमरोचकम्॥10॥
मूर्च्छाच्छर्दिज्वरानाहकाक्षवथुपीनसान्। Ma.Ni. – 7/10,11

- These sets of *Krimi* are proliferated in *Amashaya* due to the vitiation of *Kapha Dosha* and move throughout the body.
- These *Krimi* are either flat or elongated. A few *Krimi* are like earthworm, elevated, curved and some are short.
- They are white when they have not consumed anything and later transform into coppery colour after the consumption of sucking *Rasa* and *Rakta* from the gut.
- They are seven in number.
- They are responsible for the manifestation of nausea, excess salivation, indigestion, tastelessness, altered state of consciousness, vomiting, fever, distension of abdomen, emaciation, sneezing, running nose.

## Raktaja Krimi

शोणितजानां तु खलु कुष्ठैः समानं समुत्थानं; स्थानं - रक्तवाहिन्यो धमन्यः; संस्थानम् - अणवो वृत्ताश्चापादाश्च, सूक्ष्मत्वाच्चैके भवन्त्यदृश्याः वर्णः- ताम्रः नामानि - केशादा, लोमादा, लोमद्वीपाः, सौरसा, औडुम्बरा, जन्तुमातरश्चेति; प्रभावः - केशश्म श्रुनखलोमपक्ष्मापध्वंसः, व्रणगतानां च हर्षकण्डूतोदसंसर्पणानि, अतिवृद्धानां च त्वक्सिरास्नायुमां- सतरुणास्थिभक्षणमिति; चिकित्सितमप्येषां कुष्ठैः समानं, तदुत्तरकालमुपदेक्ष्यामः॥11॥

Ca.Vi. – 7/11

केशरोमनखादाश्च दन्तादाः किक्किशास्तथा।
कुष्ठजाश्च परीसर्पा ज्ञेयाः शोणितसंभवाः॥15॥ Su.Ut. -53/15
ते सरक्ताश्च कृष्णाश्च स्निग्धाश्च पृथवस्तथा। Su.Ut. – 53/16
रक्ताधिष्ठानजान् प्रायो चिकारान् जनयन्ति ते॥16॥ Su.Ut. – 53/16

## Nidana of Shonitaja Krimi

विरुद्धाजीर्णशाकाद्यैः शोणितोत्था भवन्ति हि।

Su.Ut. 53/18; Ma.Ni. 7/6

Excess consumption of *Viruddha Ahara* (18 types of *Viruddha* as per *Charaka*), *Ajirna* (a state of indigestion) and certain types of vegetables are considered as the causative factors for the proliferation of *Shonitaja Krimi* in the body.

## Lakshana of Shonitaja Krimi

षट् ते कुष्ठैककर्माणः Ma.Ni. – 7/12

- *Shonitaja Krimi* are present in *Raktavahi Dhamani* and circulate along with *Rakta* (blood).
- These are microscopic in appearance, circular without limbs and some of the *Krimi* are invisible and colour of these *Krimi* is coppery colour. Some of the *Krimi* are having blackish discolouration.
- As per *Charaka*, the clinical features of *Raktaja Krimi* are similar to *Kushtha* (group of skin diseases). The clinical features observed in case of affliction of *Raktaja* or *Shonitaja Krimi* are destruction of scalp hairs, abnormal sensation of pricking type of pain, horripulation, itching, in advanced stages, there will be destruction of skin, blood vessels, ligaments, muscles and tendons.

## Purishaja Krimi

पुरीषजास्तुल्यसमुत्थानाः श्लेष्मजैः; तेषां स्थानं पक्काशयः, ते प्रवर्धमानास्त्वधो विसर्पन्ति, यस्य पुनरामाशयाभिमुखाः स्युर्यदन्तरं तदन्तरं तस्यो- द्गारनिःश्वासाः पुरीषगन्धिनः स्युः; संस्थानवर्णविशेषास्तु- सूक्ष्मवृत्तपरीणाहाः श्वेता दीर्घा ऊर्णाशु- संकाशाः केचित् केचित् पुनः स्थूलवृत्तपरीणाहाः श्यावनीलहरितपीताः; तेषां नामानि ककेरुकाः, मकेरुकाः, लेलिहाः; सशूलकाः, सौसुरादाश्चेति; प्रभावः --- पुरीषभेदः, कार्य, पारुष्यं, लोमहर्षाभि- निर्वर्तनं च त एव चास्य गुदमुखं परितुदन्तः कण्डूं चोपजनयन्तो गुदमुखं पर्यासते, त एव जातहर्षा गुदनिष्क्रमणमतिवेलं कुर्वन्ति इत्येष श्लेष्मजानां पुरीषजानां च किमीणां समुत्थानादिविशेषः॥13॥ Ca.Vi. – 7/13

## Nidana of Purishaja Krimi

माषपिष्टाम्ललवणगुडशाकैः पुरीषजाः।

Ma.Ni. – 7/5

Excess consumption of black gram items, flour substances, sour and salty substances, jaggery and certain vegetables are considered as the causative factors for the multiplication of *Purishaja Krimi*.

## Lakshana of Purishaja Krimi

विड्भेदशूल विष्टम्भकार्श्यपारुष्यपाण्डुताः।
रोमहर्षाग्निसदनं गुदकण्डूर्विमार्गगाः॥16॥

Ma.Ni. – 7/16

- *Purishaja Krimi* are arising from *Pakvashaya*, usually moving downwards. When increased in number, they move towards *Amashaya*, then produce smell of faeces in the mouth, belchings and expiration
- They are thick, round, blue, yellowish, white or black in colour.
- *Purishaja Krimi* are five in number.
- The clinical features of *Purishaja Krimi* are diarrhoea, pain abdomen, poor peristaltic movements, emaciation, roughness of the skin, yellowish white discolouration, horripulation, reduced appetite, itching around anal region.

## Sadhyasadhyata of Krimi

दृश्यास्त्रयोदशाद्यास्तु कृमीणां परिकीर्तिताः॥19॥
केशादाद्यास्त्वदृश्यास्ते द्वावाद्यौ परिवर्जयेत्।

Su.Ut. – 54/19,20

- Out of 20 types of *Krimi*, 13 varieties of *Purishaja* and *Kaphaja Krimi* are visible and 7 varieties of *Krimi* are invisible. Among these *Krimi*, *Keshada* and *Romada*[24] varieties of *Krimi* are very difficult to cure and other varieties of *Krimi* are treatable.

### Key summary points of the chapter

- **क्रव्ये मेध्याति क्रमते वा स्यात् सरणकर्मणः क्रामते वा॥ यक्षाचार्य** means the one which thrives in Kravya (flesh) and performs movements is Krimi.
- The causative factors which vitiate the Kapha and Pitta Dosha are responsible for the manifestation of Krimi in the body.
- **Sankhya Samprapti of Krimi is 20.** They are further subclassified into 4 –
  - Bahya (2),
  - Shleshmaja (7),
  - Shonitaja (6) and
  - Purishaja (5) Krimi.
  - ➢ **2 Bahya Krimi** are **Yuka** and **Pipilika.**
  - ➢ **7 Shleshmaja Krimi** are **Antrada, Udarada, Hridayachara, Churu, Darbhapushpa, Saugandhika, Mahaguda.**
  - ➢ **6 Shonitaja Krimi** are **Keshada, Lomada, Lomadvipa, Saurasa, Audumbara and Jantumatara.**
  - ➢ **5 Purishaja Krimi** are **Kakeruka, Makeruka, Leliha, Sashula and Sausurada.**
- **Sushruta has also mentioned 20 types of Krimi.**
- As far as Vidhi Samprapti of Krimi is concerned, 2 types of Krimi Sahaja and Vaikarika.
  - ➢ Vaikarika Krimi needs special attention as these are responsible for various pathological events in the body.
  - ➢ 2 types of Vaikarika Krimi are Bahya and Abhyantara.
  - ➢ Bahya types of Krimi can be removed by external means such as Yantra etc whereas Abhyantara Krimi require internal medicines to eliminate these Krimi in the body.
- (**ज्वरो विवर्णता शूलं हृद्रोगः सदनं भ्रमः॥18॥ भक्तद्वेषोऽतिसारश्च संजातकृमिलक्षणम्।**) Su.Ut. – 54/18-19; Ma.Ni. – 7/6,7 Jvara, Vaivarnya, Shula, Hridroga, Sadana, Bhrama, Bhaktadvesha and Atisara are the Lakshana observed when an individual is having Krimi inside the body.
- Among the Krimi, Keshada and Romada varieties of Shonitaja Krimi are very difficult to cure whereas the other types of Krimi are comparatively easier to cure.

---

[24] Keshada and Romada are the varieties of Shonitaja Krimi. Here, we can attribute that there is a possibility of septicemia or septic shock. This type of shock is considered to be the most frequent cause of shock related death in the hospitals. Refer the context of septic shock explained in this chapter.
In the initial stages of septic shock, the patient usually does not have signs of circulatory collapse but only signs of bacterial infection. As the infection becomes more severe, the circulatory system usually becomes involved either because of direct extension of the infection or secondarily as a result of toxins from the bacteria, with resultant loss of plasma into the infected tissues through deteriorating blood capillary walls

## Self-Assessment: Questions for Reviews

### Long essay questions

- Define Krimi. Explain the Samanya Nidana, Samprapti and Samanya Lakshana and types of Krimi and Sadhyasadhyata of Krimi.

### Short essay questions

- Explain the Vidhi Samprapti of Krimi
- Explain Shonitaja (Raktaja) Krimi
- Explain Shleshmaja (Kaphaja) Krimi
- Explain Purishaja Krimi

### Short answers

- Write the definition of Krimi
- Enumerate 20 types of Krimi
- Write a short note on Shonitaja Krimi
- Write a short note on Kaphaja Krimi
- Write a short note on Purishaja Krimi

## MCQs

**1. Sankhya Samprapti of Krimi as per Charaka is**

a. 2; b. 20; c. 7; d. 10

*Answer:* (b)

**2. The number of Purishaja Krimi as per Charaka is**

a. 2; b. 7; c. 6; d. 5

*Answer:* (d)

**3. Darbhapushpa is the variety of**

a. Bahya Krimi; b. Shonitaja Krimi;
c. Shleshmaja Krimi; d. Purishaja Krimi

*Answer:* (c)

**4. Yuka and Pipilika are**

a. Bahya Krimi; b. Shonitaja Krimi;
c. Shleshmaja Krimi; d. Purishaja Krimi

*Answer:* (a)

**5. Which type of Krimi is responsible for the Lakshana similar to Kushtha (skin disease)?**

a. Bahya Krimi; b. Shonitaja Krimi;
c. Shleshmaja Krimi; d. Purishaja Krimi

*Answer:* (c)

**6. The number of Krimi explained by Sharangadhara is**

a. 20; b. 21; c. 2; d. 22

*Answer:* (b)

**7. Jvara, Vivarnata, Shoola, Hridroga, Bhrama, Bhakta Dvesha and Atisara are seen in**

a. Kushtha; b. Raktapitta;
c. Vishtambha; d. Krimi

*Answer:* (d)

**8. Gudakandu is caused by**

a. Kaphaja Krimi; b. Raktaja Krimi;
c. Purishaja Krimi; d. Bahya Krimi

*Answer:* (c)

**9. Audumbara and Romadvipa Krimi belong to**

a. Raktaja Krimi; b. Purishaja Krimi;
c. Malaja Krimi; d. None of the above

*Answer:* (a)

**10. Sanjata Krimi Lakshana is**

a. Pravahika; b. Shotha;
c. Bhakta Dvesha and Atisara; d. Baddha Vitkata

*Answer:* (c)

**11. Which one of the following manifested in an individual due to the presence of Krimi?**

a. Shvasa; b. Hikka;
c. Kasa; d. Shula

*Answer:* (d)

**12. As per Madhava Nidana, Romavidhvamsa belongs to**

a. Kaphaja Krimi; b. Raktaja Krimi;
c. Bahya Krimi; d. Purishaja Krimi

*Answer:* (b)

**13. The mean daily loss of blood due to one ancylostoma duodenale is**

a. 0.15 ml; b. 0.01 ml;
c. 0.03 ml; d. 1.25 ml

*Answer:* (a)

**14. Which of the following is a round worm?**

a. Enterobius vermicularis; b. Hymenolepis nana;
c. Ascaris lumbricoides; d. Tricuris trichuria

*Answer:* (c)

**15. The colour of Raktaja Krimi is**

a. Like Indragopa; b. Black;
c. Like Tamra; d. Greenish blue

Answer: (c)

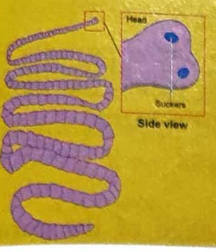
## Chapter resources

- Charaka Samhita, Vimana Sthana – 7th chapter – Vyadhita Rupiya Vimana Adhyaya
- Sushruta Samhita, Uttara Tantra 54th chapter – Krimi Pratishedha Adhyaya
- Madhava Nidana – 7th chapter – Krimi Nidana Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006

***

CHAPTER

57



# Clinical presentation of common parasitic diseases

**Learning Objectives**

- ⇨ To discuss the meaning of parasites
- ⇨ To classify the parasites based on their morphological structures and habitats
- ⇨ To describe pathogenesis of various parasites
- ⇨ To perform the relevant clinical examination of the patients of hookworm, round worm, thread worm and pin worm
- ⇨ To order and interpret the relevant laboratory investigations for the diagnosis of hookworm, roundworm, threadworm and pinworm

## Introduction

Parasites are probably the most complex of all microbes infecting humankind. They can be unicellular organisms (e.g. Plasmodium species, which causes malaria) or multicellular, with sizes extending upto 10 meters (e.g. tapeworm). Their life cycles may be simple or complex, requiring multiple hosts and vectors. The literal meaning of parasite is 'eating from another's plate'. In other words, parasites take their nutrition from their hosts where they are residing.

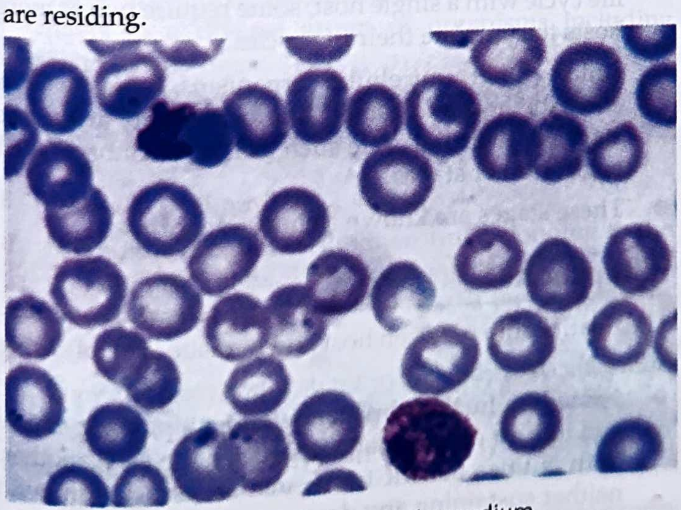


**Figure 229:** Species of plasmodium

### Characters of parasites

The following are the characters of parasites

- A living organism which receives nutrition and shelter from another organism where it lives is called parasite.
- A parasite does not necessarily cause disease.
- Simply parasitism is living in association with the host.
- The parasite derives all benefits from the association and the host may either not be harmed or may suffer the consequences of this association, a parasite disease.
- A parasite is an organism that is entirely dependent on another organism, referred to as its host, for all or part of the life cycle and metabolic requirements.
- **Host:** an organism which harbours the parasite.

### Classes of parasites

Parasites are mainly classified into following two categories; along with some other types of parasites:

- **Unicellular** (having a single cell, can be visualised under microscope, e.g. protozoa such as Entamoeba hystolytica (**see Figure 230**) and multicellular (can be visualised with naked eye, e.g. helminths such as roundworms (**see Figure 231**)
- **Ecto-parasite (ectozoa):** Lives outside on the surface of the body of the host.
- **Endo- parasite (entozoan):** Lives inside the body the host; in the blood, tissues, body cavities, digestive tract and other organs.

- **Temporary parasite** – visits its host for a short period
- **Permanent parasite** – leads a parasitic life throughout the whole period of its life.
- **Facultative parasite** – lives a parasitic life when opportunity arises.
- **Obligatory parasite** – cannot exist without the parasitic life.
- **Wandering or aberrant parasite** – happens to reach a place where it cannot live.
- **Occasional or accidental parasite** – attacks an unusual host.

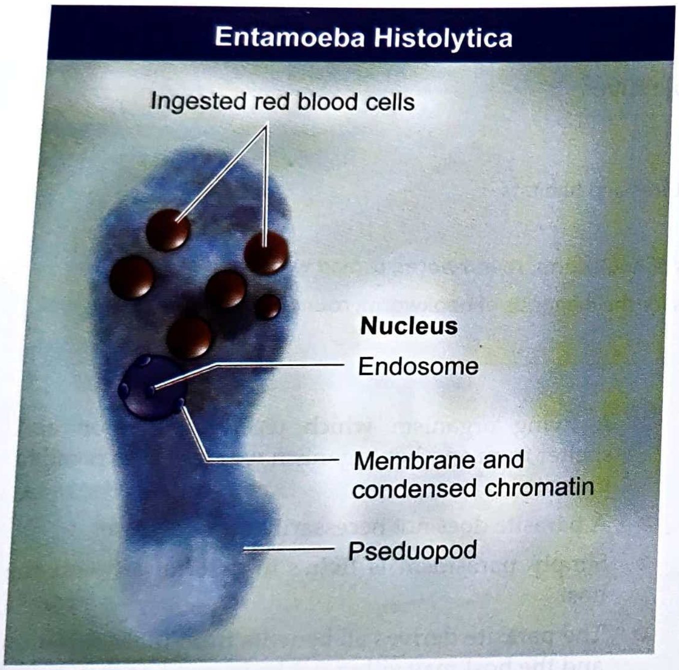


**Figure 230:** Entamoeba hystolytica

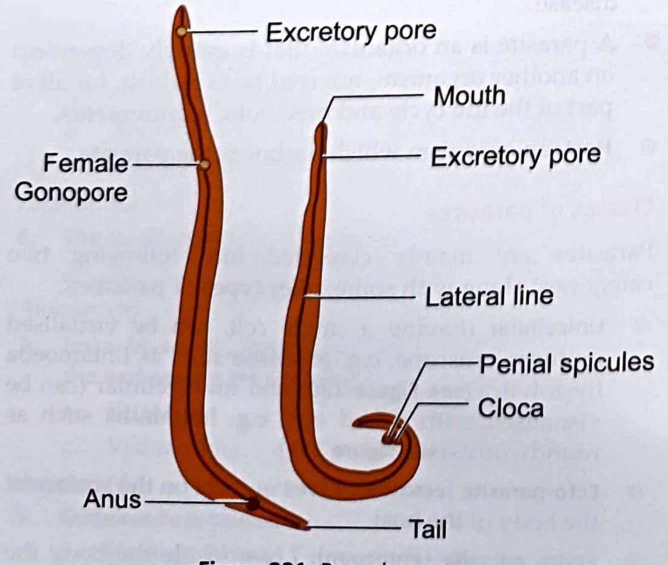


**Figure 231:** Roundworms

## Host

A host is an entity that provides nourishment and harbours the parasite. In the process, the host may suffer injury and lose nutrients. Depending on their relationship with parasite, hosts can be categorised as follows:

### Definitive host

This is a host in which adult stage of the parasite lives (e.g. helminths) or the organism in which the parasite undergoes sexual reproduction (e.g. protozoa)

### Intermediate host

A host that harbours the larval stage of the parasite (helminths) or in which asexual reproduction takes place (protozoa) is known as an intermediate host. for example, humans are intermediate hosts in malaria and hydatid disease.

### Reservoir host

This type of host harbours the parasite and also acts as a source of infection.

### Paratenic host

The parasite is unable to develop further in this host. it can act as a transport or carrier host.

## Habitat

A place where the parasite naturally lives and grows is known as its habitat, e.g. malarial parasite in humans resides in the liver and RBC.

## Life cycle of parasites

- While a number of parasites follow a simple or direct life cycle with a single host, some require two or more hosts to complete their life cycles.
- Unlike other unicellular organisms, parasites can enter the host and establish infection only at specific stages in their life cycle such as larvae, embryonated eggs or other stages.
- These stages are known as infective forms.

## Host parasite

The relationship between host and parasite is of following types.

- **Symbiosis:** In this type of relationship, the parasite and its host are mutually dependent on each another. Both entities benefit from such an association, with neither sustaining any damage or injury.
- **Commensalism:** This refers to an association from which the parasite benefits, while the host is neither benefited nor harmed.

- **Parasitism:** This is a situation in which one living organism is fully dependent on the host for survival and cannot live independently.

  Parasite derive the benefits of nutrition and shelter from the host they live in. In the process, the host is harmed either by loss of nutrients or by pathological changes caused by the parasite harboured in the host.

## Classification of parasites

Classification of parasites which can cause disease can be classified in three kingdoms –

1. Protozoa;
2. Stramenopila and
3. Animalia.

### 4. Protozoa

- Protozoa are unicellular, eukaryotic, simple, microscopic parasites (e.g. Plasmodium) which obtain nutrition by ingesting nutrients present in the host.
- Intestinal protozoa are unicellular organisms with very little structural differentiation. Each contains at least one or several nuclei.
- They may be motile – on account of the presence of pseudopodia, cilia or flagella or non motile.
- The single protozoan cell performs all life functions like respiration, digestion, reproduction etc.
- The generation time is short and the reproduction rate is high. Most protozoa are harmless and exist in nature of soil and water.

### 5. Stramenopila

- These are unicellular, plant like animals. This term refers to a diverse group of organisms including diatoms and algae.

  The pathogenic parasite in this group is Blastocystis, which causes gastrointestinal infections.

### 6. Animalia (Helminths)

- Helminths are multicellular worms belonging to the kingdom Animalia. They are elongated, flat or round worms that can range in size from a few millimetres to meters.

  They affect several systems in the body and cause mild asymptomatic to severe life threatening infections.
- Helminths are classified into two phyla which are as follows:
  - **Phylum Nemathelminths** – includes a single group of pathogen, the nematodes.
  - **Phylum Platyhelminths** – includes two classes of pathogens, namely cystodes and trematodes.

## Nematodes

### Characters of nematodes

- Adult worms range in size from **3 mm to 1 m.**
- They are long, cylindrical, bilaterally symmetrical and unsegmented, with both ends pointed and without any appendages.
- A pseudocele (body cavity) is present between the body wall and intestine.
- The sexes are separate and females are generally longer than males.
- The body wall has an outer tough cuticle layer and a longitudinal muscle, which is responsible for the movement of the worm.
- The alimentary canal is well-developed, with a mouth at the anterior end and a substernal anus. Hookworms have teeth or cutting plates. Internally, nematodes have a well-developed glandular esophagus, intestine, rectum.
- The reproductive system in males comprises a long, convoluted tube, which can be differentiated into the testes, vas deferens, seminal vesicle and ejaculatory duct. The ejaculatory duct opens at the posterior end along with the rectum.
- The female reproductive system consists of an ovary, oviduct, seminal receptacle and uterus; both tubes open into a vagina, which opens through a genital pore near the mouth or in the middle of the body.
- The nervous system is rudimentary, consisting of a brain which is a circular ring with six nerve trunks running longitudinally.
- The excretory system too is rudimentary, sometimes ending in an anus other times with waste being excreted through the body wall. In some members, the excretory canal is located near the oesophagus.
- Intestinal nematodes complete their life cycle in a single host.

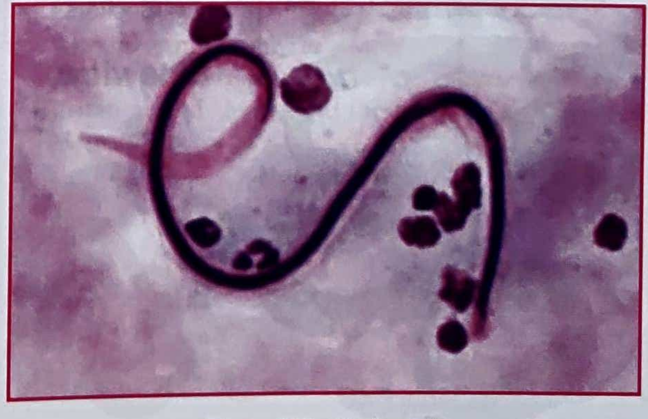


**Figure 232:** Wuchereria

- Nematodes either lay eggs (oviparous e.g. Ascaris) or larvae (viviparous e.g. Wuchereria **see Figure 232**) or can lay eggs that immediately hatch into larvae (ovoviviparous e.g. Strongyloides).

### Clinical implications of nematode infections

- Most patients infected with intestinal helminths remain asymptomatic.
- The clinical presentation may be limited to vague abdominal pain and occasional diarrhoea.
- In children, the habit of eating of mud (pica), growth retardation and malnutrition may be the only complaints.
- The bolus of adult worms can block the intestine, causing pain abdomen, intestinal obstruction, perforation, intussusception or volvulus.
- The migration of adult worms into the biliary tract can cause biliary colic, cholecystitis, cholangitis and pancreatitis.
- Allergic manifestations such as fever, urticaria, angioneurotic oedema and conjunctivitis can occur in all nematode infections.
- Patients infected with hookworms may present with anemia and malnutrition.
- The migration of larvae through the skin may cause cutaneous manifestations.

## Cestodes

### Characters of cestodes

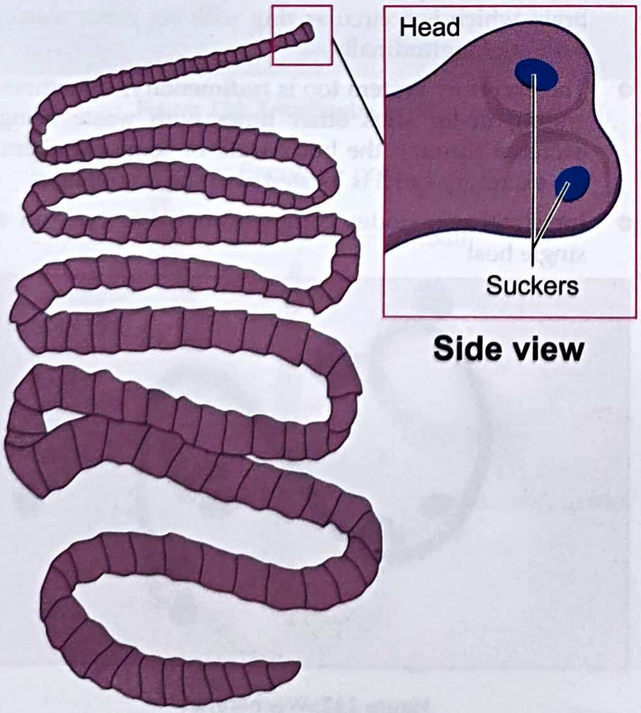


**Figure 233:** Tapeworms

- The adult worm, which usually resides in the intestine of its host is segmented, long and flattened dorsoventrally. Due to their tape like form, cestodes are called tape worms. **(see Figure 233)**
- Their body is covered with a tough cuticle layer, there is no body cavity.
- Broadly, the morphological features of the adult worm – a head (scolex), a neck and body (strobila).
- The scolex or head is the organ of attachment. It can bear suckers (as in taenia) or a pair of longitudinal grooves, called bothria. The head continues into a neck.
- The strobila or body is made up of multiple segments called proglottids. Small tapeworms like Echinococcus granulosus possess 3-4 segments, while longer ones like Taenia saginata may have upto 1,000 segments.
- These worms lack an alimentary canal; they absorb the nutrients through their outer coat.
- Excretory tubules are present in each segment and waste products are eliminated through the terminal flame cells.
- The sexes are not separate. Both male and female reproductive systems are present in each proglottid, i.e. these worms are hermaphrodites.
- The reproductive system is highly developed in cestodes. Both male and female genital openings are located in common genital pore. Fertlisation occurs between segments of same worm. Gravid proglottids containing hundreds of eggs are released into the environment by the host.
- The nervous system is primitive and consists of the cephalic ganglion in the scolex, which is connected with sensory and motor nerves across proglottids.
- In Diphyllobothrium, the eggs are operculated (bearing a lid), while in taenia, the eggs may contain a hexacanth embryo.

## Trematodes

### Characters of trematodes

- Adults are leaf like, flat, unsegmented worms ranging in size from 1 mm to several cms. Females are longer and thinner than males.
- Trematodes reside in the intestine, liver, lungs or blood vessels.
- Their body is covered with an integument: they lack a body cavity.
- Eggs are oval to round, operculated and embryonated when laid.
- Several larval forms are seen – metacercaria which are the infective forms. Cercaria, redia, sporocysts and miracidia.

- The sexes are not separate except in schistosomes.
- The alimentary tract consists of a blind, bifuricated intestinal tract without an anus.
- Trematodes have a primitive nervous system and well developed excretory and reproductive systems.
- Trematodes are oviparous. Eggs are operculated (lidded), containing a small ovum with yolk granules.

Schistosoma eggs are not operculated and have a spine.

Trematodes are present in many animals beside humans and are often zoonoses.

## Clinical implications of trematodes

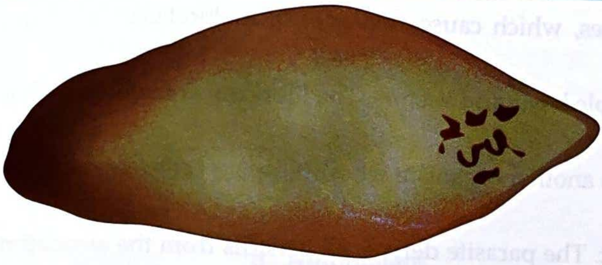


**Figure 234:** Liver flukes

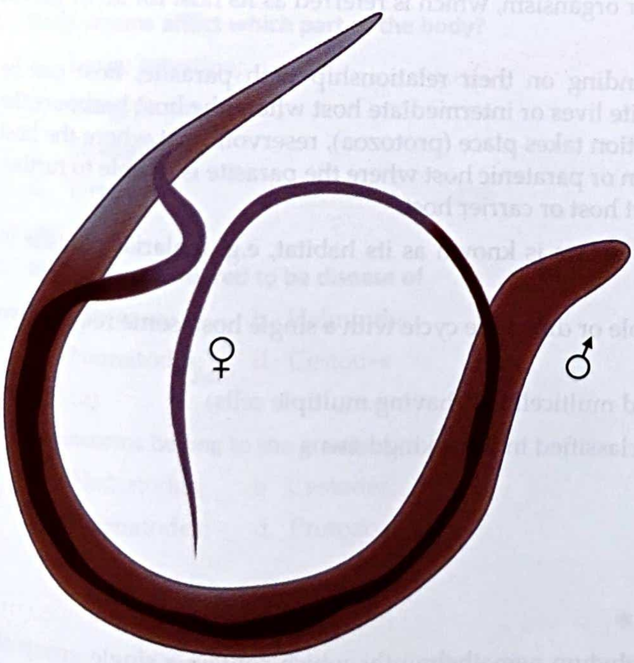


**Figure 235:** Blood flukes

- Trematodes comprise liver flukes **(see Figure 234)**, blood flukes **(see Figure 235)**, lung flukes **(see Figure 236)** and intestinal flukes **(see Figure 237)**.

In the acute stages, liver flukes cause vague abdominal symptoms like abdominal pain, anorexia, nausea, diarrhoea and flatulence.

- Later, the worm causes inflammation and granuloma and abscesses, followed by fibrosis and bile duct hyperplasia, causing cholangitis, cholecystitis, cholelithiasis, liver rot, cirrhosis and pancreatitis.
- Blood flukes can cause urogenital disease and predispose to urinary bladder carcinoma.

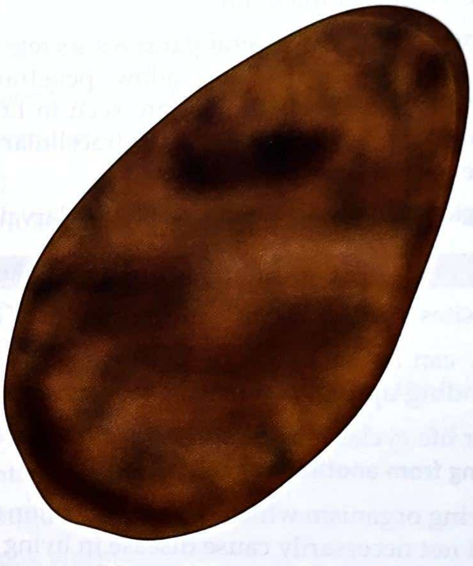


**Figure 236:** Lung flukes

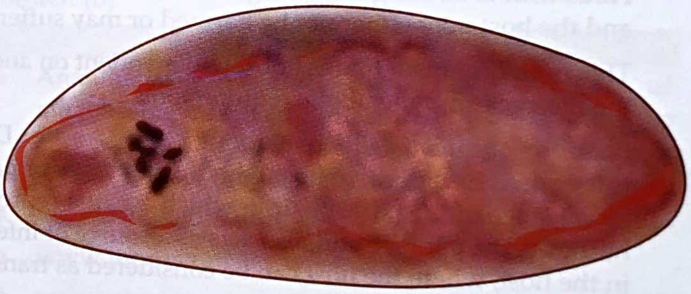


**Figure 237:** Intestinal flukes

## Pathogenesis of parasitic diseases

- **Physical obstruction, irritation and trauma:** A high load of worms in the intestine can cause intestinal obstruction (*Ascaris*).
- Attachment to the intestinal mucosa causes irritation and bleeding from the villi (hookworm).
- Also, the migration of worms through the lungs as part of the natural life cycle causes mechanical irritation and damage to the pulmonary capillaries (e.g. *Strongyloides*).

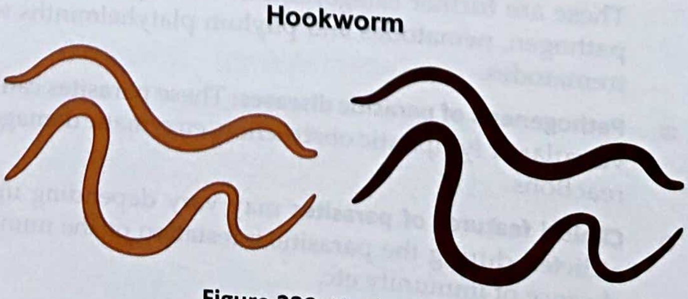


**Figure 238:** Hookworms

- **Vascular or lymphatic obstruction:** Elephantiasis –

oedematous swelling of the limbs – is caused by the blockage of the lymphatics by the adult worms in filariasis.

Cerebral malaria can occur due to the blockage of blood vessels of the brain.

- **Enzymatic damage:** Several parasites secrete enzymes that damage tissues and allow penetration. For example, flask shaped ulcer are seen in Entamoeba histolytica infections of the gut. Intracellular parasites cause the necrosis of the cells.
- **Allergic reactions:** The presence of the larval rms and adult worm in the host elicits an increase in IgE production, which results in allergic manifestations. The rupture of hydatid cysts to release hydatid fluid can trigger an anaphylactic reaction.
- **Inflammation:** Many parasites provoke cellular infiltration and proliferation, resulting in inflammatory reaction. Granuloma formation can be seen in some parasites such as Entamoeba histolytica.
- **Neoplastic reactions:** Some parasites such as Schistosoma are associated with carcinoma.

## Key summary of the chapter

- Parasites are probably the most complex of all microbes infecting humankind.

  They can be **unicellular** organisms (e.g. Plasmodium species, which causes malaria) or **multicellular**, with sizes extending upto 10 meters (e.g. tapeworm).

  Their life cycles may be simple or complex, requiring multiple hosts and vectors. The literal meaning of parasite is **'eating from another's plate'**.
- A living organism which receives nutrition and shelter from another organism where it lives is called **parasite.** This need not necessarily cause disease in living beings.

  Parasitism is nothing but living in association with the host. The parasite derives all benefits from the association and the host may either not be harmed or may suffer the consequences of association.

  This is an organism that is entirely dependent on another organsism, which is referred as its host for all or part of the life cycle and metabolic requirements.
- **Host:** an organism which harbours the parasite. Depending on their relationship with parasite, host can be categorised as definitive host where adult stage of parasite lives or intermediate host where the host harbours the larval stage of the parasite or in which asexual reproduction takes place (protozoa), reservoir host where the host harbours the parasite and also acts as a source of infection or paratenic host where the parasite is unable to further in the host, where the host can be considered as transport host or carrier host.
- **Habitat:** A place where the parasite naturally lives and grows is known as its habitat, e.g. malarial parasite in humans resides in the liver and RBC.
- **Life cycle of parasites:** a number of parasites follow a simple or direct life cycle with a single host, some require two or more hosts to complete their life cycles.
- **Classes of parasites:** unicellular (single celled parasite) and multicellular (having multiple cells)
- **Classification of parasites** which can cause disease can be classified in three kingdoms –

  (i) **Protozoa;**

  (ii) **Stramenopila** and

  (iii) **Animalia.**

  Helminths are categorised under animalia.

  These are further categorised into two phyla, namely, phylum nemathelminths which contain a single group of pathogen, nematodes and phylum platyhelminths which include two classes of pathogens, namely cystodes and trematodes.
- **Pathogenesis of parasitic diseases:** These parasites can cause physical obstruction, irritation and trauma to the body, vascular or lymphatic obstruction, enzymatic damage to the tissues, allergic reactions, inflammation and neoplastic reactions.
- **Clinical features of parasites** may vary depending upon the nature of parasite in the body, the part of the body afflicted during the parasitic infestation or the number of parasites afflicting the human body or the presence or absence of immunity etc.

## Self-Assessment: Questions for Review

### Short essay questions

- Describe helminths
- Describe parasites

### MCQs

**1. Plasmodium belongs to**

a. Protozoa; b. Nematodes;
c. Trematodes; d. Cestodes

*Answer:* (a)

**2. Which of the following is incorrect regarding protozoa?**

a. Unicellular;
b. Multicellular;
c. Eukaryotic cell;
d. Microscopic parasite

*Answer:* (b)

**3. Helminths belong to the group of**

a. Animalia; b. Birds;
c. Reptiles; d. Amphibians

*Answer:* (a)

**4. Hook worms afflict which part of the body?**

a. Large intestine;
b. Lung parenchyma;
c. Stomach;
d. Urethra

*Answer:* (a)

**5. Malaria is considered to be disease of**

a. Protozoa; b. Helminths;
c. Nematodes; d. Cestodes

*Answer:* (a)

**6. Tapeworms belong to the group of**

a. Nematodes; b. Cestodes;
c. Trematodes; d. Protozoa

*Answer:* (b)

**7. Endo parasite lives in the following except**

a. Lymph; b. Blood;
c. Muscle; d. Skin

*Answer:* (d)

8. Taenia saginata belongs to the group of

a. Nematodes; b. Trematodes;
c. Cestodes; d. Protozoa

*Answer:* (c)

9. Liver flukes belong to the group of

a. Nematodes; b. Trematodes;
c. Cestodes; d. Protozoa

*Answer:* (b)

10. Sleeping sickness is caused by which of the following?

a. Plasmodium species;
b. Entamoeba hystolytica;
c. Round worm;
d. Hook worm

*Answer:* (b)

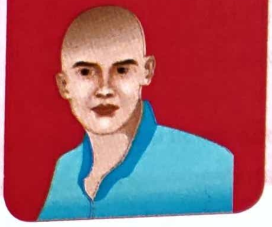
### Chapter resources

- Ananthanarayan and Paniker's Textbook of microbiology, 12th edition, edited by Reba Kanungo and Sonal Saxena, Published by Universities Press (India) Private Limited, Hyderabad, 2022
- www.wikipedia.org
- www.toppr.com
- www.pbs.twing.com
- www.msdmanuals.com
- www.cdnbritannica.com
- www.sciencedirect.com
- www.medscapestatic.com
- www.sciencesource.com
- www.freepik.com

***

## CHAPTER

## 58



# Khalitya and Palitya

**Learning Objectives**

- ⇨ To understand the concept of Khalitya and Palitya
- ⇨ To understand the Nidana Panchaka of Khalitya and Palitya mentioned in Ayurveda literatures
- ⇨ To understand the concept of Palitya
- ⇨ To understand the Nidana Panchaka of Palitya mentioned in Ayurveda literatures

## Khalitya

*Khalitya* is a disease involving scalp of an individual. This is identified by the absence of hairs in the scalp region. This disease is also called as *Indralupta, Rujya*. This disease can be either patchy i.e. involving a few areas of the scalp or diffuse i.e. involving whole scalp region.

**तेजोऽनिलाद्यैः सह केशभूमिं दुग्ध्वाऽऽशु कुर्यात् खलतिं नरस्य।**

Ca.Ci. – 26/132

- As per *Charaka*, the disease *Khalitya* is manifested in an individual due to the vitiation of *Pitta* and *Vata*.
- This vitiation is responsible for *Dagdhata* or burning of scalp hairs. As a result, there will be falling of hairs from the scalp takes place.

**रोमकूपानुगं पित्तं वातेन सह मूच्छितम्।**
**प्रच्यावयति रोमाणि ततः श्लेष्मा सशोणितः॥3 1 ॥**
**रुणद्धि रोमकूपांस्तु ततोऽन्येषामसंभवः।**
**तदिन्द्रलुप्तं खालित्यं रुज्येति च विभाव्यते॥3 2 ॥** Su.Ni. – 13/31-32
**रोमकूपानुगं पित्तं वातेन सह मूच्छितमिति खालित्यं पुंसा- मेव न तु योषिताम्।**
**तथाच विदेहः, – 'अत्यन्तसुकुमा- रांग्यो रजो दुष्टं स्त्रवन्ति च।**
**अव्यायामरता यस्मात् तस्मान्न खलितिः स्त्रियाम्॥3 1 ॥**

Dalhana, Su.Ni. – 13/31,32

- *Pitta* and *Vata Dosha* are going to get vitiated in the patients of *Khalitya*.
- After vitiation, these *Dosha* move towards the *Romakupa* (root of hairs of scalp)
- Hair fall occurs as a consequence to this change.
- *Kapha* and *Rakta* are getting blocked in the region of *Romakupa*.
- No new scalp hairs are produced and the person will remain scalp hair less and no new scalp hairs are seen.
- This is also called as *Indralupta* and *Rujya*.
- This disease is seen in males not in females.

## Alopecia

### Male and female pattern baldness

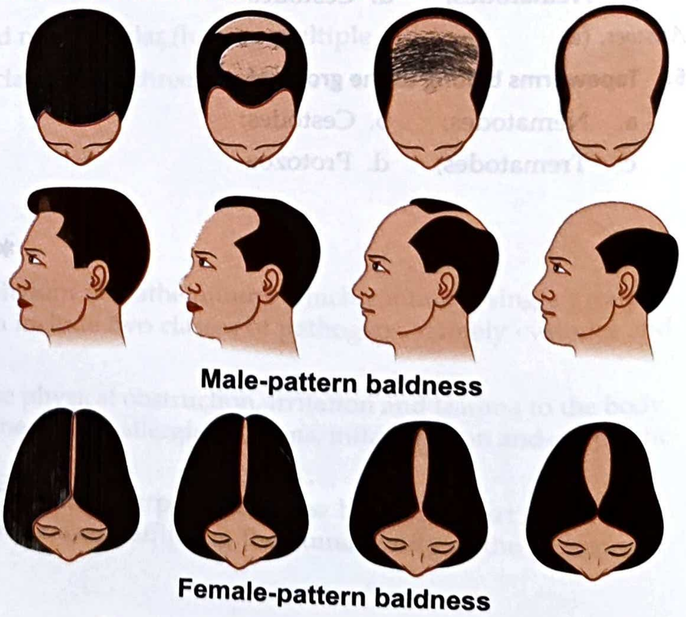


**Figure 239:** Pratyatma Lakshana of Khalitya

- Alopecia is a dermatologic condition in which sudden or gradual loss of hair occurs on 1 or more areas of the body, most commonly the scalp.
- Hair loss can be acute or chronic in nature as a result of underlying inflammation, autoimmune processes, stressors, chemotherapy, or hairstyling practices.
- *Alopecia* can have substantial psychological consequences, having a negative impact on the quality of life in affected patients.
- The ability to both recognize and distinguish these condition holds great significance not only in providing adequate and timely treatment to improve outcomes but also meeting patient needs.
- There are three terms used in the context of alopecia.
- They are alopecia areata, alopecia totalis and alopecia universalis.

### Alopecia areata

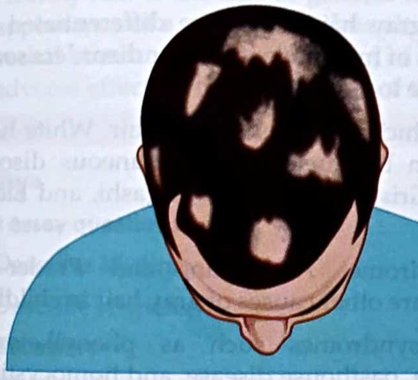


**Figure 240:** Alopecia areata

- This condition is associated with patchy hair loss from the scalp. Most of the occasions, the cause of this condition is psychological.

### Alopecia totalis

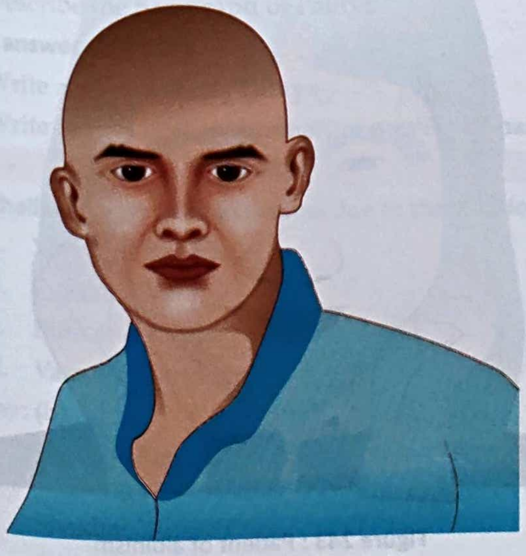


**Figure 241:** Alopecia totalis

- This condition is associated with complete hair loss from the scalp.

### Alopecia universalis

- This clinical condition is associated with complete hair loss over entire parts of the body including axilla, eyebrows, eyelashes, pubic region and scalp.

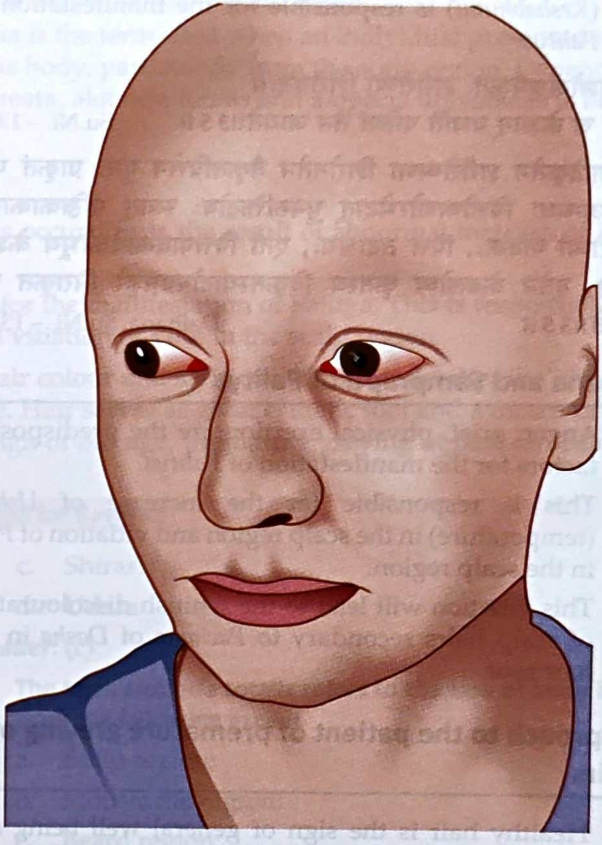


**Figure 242:** Alopecia universalis

## Palitya

### Introduction

- *Palitya* is a disease of scalp region. This is characterised by greyish discolouration of scalp hairs in premature age.
- This disease is having the dominance of *Pitta* along with *Vata Dosha*.
- When this is occurring in the elderly individuals, this can be categorised under *Kalaja* category of *Svabhavabala Pravritta Vikara* of *Adhidaivika Vikara.*
- If the same is observed in the younger individuals, then such *Vikara* can be considered under *Akalaja* variety of *Svabhavabala Pravritta Vikara* of *Adhidaivika Vikara.*

**तेजोऽनिलाद्यैः सह केशभूमि दग्ध्वाऽऽशु कुर्यात् खलतिं नरस्य।**
**किंचित्तु दग्ध्वा पलितानि कुर्या द्धरिप्रभत्वं च शिरोरुहाणाम्॥132॥**

Ca.Ci. – 26/132

- Premature greying of scalp hair is being termed as *Palitya*.

  This occurs due to abnormal increase of *Pitta Dosha* in the body.
- Usually, this happens due to normal ageing process.
- As per *Charaka*, partial burning of scalp region (*Keshabhumi*) is responsible for the manifestation of *Palitya*.

**क्रोधशोकश्रमकृतः शरीरोष्मा शिरोगतः॥**
**पित्तं च केशान् पचति पलितं तेन जायते॥35॥** Su.Ni. – 13/35

**क्रोधादिकृतेन शरीरोष्मणा शिरोगतेन वैकृतपित्तेन पुनः प्राकृतं पलितं; अन्यथा पित्तोष्मणोरभेदात् पुनरुक्तिदोषः स्यात् पञ्जिकाकारस्तु शरीरोष्मा पावकः, पित्तं तदाश्रयः, एतौ पित्तपावकावेकीभूय केशान् पचेत्, एतेन केवलोष्म कृतस्य विकृतस्यादोषप्रसङ्गो निराकृत इति मन्यते॥35॥**

Dalhana, Su.Ni. – 13/35

## Nidana and Samprapti of Palitya

- Anger, grief, physical exertion are the predisposing factors for the manifestation of *Palitya*.
- This is responsible for the increase of *Ushma* (temperature) in the scalp region and vitiation of *Pitta* in the scalp region.
- This vitiation will lead to the whitish discolouration of scalp hairs secondary to *Pachana* of *Dosha* in the hair root.

## Approach to the patient of premature greying of hairs

- Healthy hair is the sign of general well being and youth.

  Hair colour and style can significantly alter the physical appearance of a person and thus alter his or her body image.

  Hair serves as great esthetic tool and a means of non verbal communication.
- Greying of hair is perceived as a sign of old age, premature greying of hair can bear an adverse effect on the self-esteem of the individual.
- Hair pigmentation is one of the most unique features in humans ranging from black, brown, and blonde to red.

  The color of human hair is due to pigment melanin produced by melanocytes which are neural crest derivatives.

  Human hair follicles contain two types of melanin as follows: eumelanin and pheomelanin.
- Severe mental stress, vitamin B12 deficiency, decreased thyroid hormones, antimalarials, smoking, protein energy malnutrition are some of the causes noted by the researchers on the cause of premature greying of hairs.

  Greying can also occur with premature aging disorders such as progeria and pangeria.

## Presentation of greying

- The rule of thumb states that by the age of 50 years, 50% of the population would have 50% of their hair turned gray.
- In men, graying first occurs in the temples and sideburns.
- It spreads to the vertex and rest of the scalp involving the occiput the last.
- In women, graying is first noticed at the boundaries of the scalp.

## Differential diagnosis of premature greying hair

- Premature gray hair has to be differentiated from other causes of hypomelanotic hair disorders some of which can be localized.
- Albinism which can cause white hair. White hair in children can be due to neurocutaneous disorders such as in Griscelli, Chediak– Higashi, and Elejalde syndromes.
- Cross syndrome, Angelman, and Prader–Willi syndromes are other causes of gray hair in childhood.
- Metabolic syndromes such as phenylketonuria, histidinemia, oasthouse disease, and homocystinuria can cause light hair.
- Vitiligo is an important cause of localized white hair called poliosis.
- Poliosis is also seen in Piebaldism, Waardenburg syndrome, Woolf syndrome, and tuberous sclerosis.

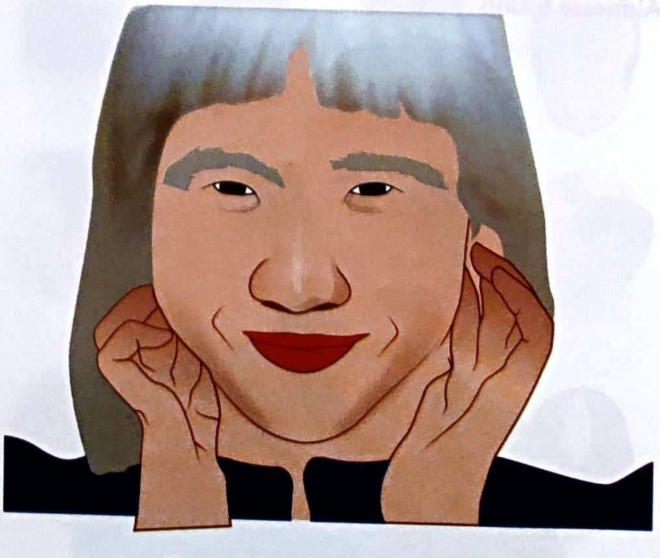


**Figure 243 :** Patient of albinism

## Key points of the chapter

### Khalitya

तेजोऽनिलाद्यैः सह केशभूमिं दुग्ध्वोशु कुर्यात् खलतिं नरस्य। Ca.Ci. – 26/132

- Khalitya is the disease afflicts the scalp of the individual. This is caused by the dominance of the Pitta associated with the vitiation of the Vata Dosha. It is also termed as Indralupta, Rujya.
- Pratyatma Lakshana of this disease is patchy or complete loss of hair from the scalp region.
- When one considers from the western point of view, alopecia is the term used when an individual presented with sudden or gradual loss of hairs from one or more areas of the body, particularly from the scalp region. Depending upon the distribution of hair loss from the body, alopecia areata, alopecia totalis and alopecia universalis is being used.

### Palitya

- Premature greying of scalp hair is termed as Palitya. This is occurring as the result of abnormal increase of Pitta Dosha in the body.
- Anger, grief, physical exertion are the predisposing factors for the manifestation of Palitya. This is responsible for the increase of Ushma (temperature) in the scalp region and vitiation of Pitta in the scalp region.
- Healthy hair is the sign of general well being and youth. Hair colour and style can significantly alter the physical appearance of a person and thus alter his or her body image. Hair serves as great esthetic tool and a means of non verbal communication. Greying of hair is perceived as a sign of old age, premature greying of hair can bear an adverse effect on the self-esteem of the individual.

## Self-Assessment: Questions for Reviews

### Khalitya

**Short essay questions**

- Describe *Khalitya*
- Describe *Alopecia*

**Short answers**

- Write a short note on *Khalitya*
- Write a short note on alopecia.

### Palitya

**Short essay questions**

- Describe Palitya
- Describe the Samprapti of Palitya

**Short answer questions**

- Write a short note on Palitya
- Write a short note on premature greying of hairs

## MCQs

**1. Khalitya occurs in an individual due to the vitiation of**

a. Vata and Kapha;
b. Pitta and Vata;
c. Pitta and Kapha;
d. Vata, Pitta and Kapha

*Answer*: (b)

**2. As per Ayurveda textbooks, Khalitya occurs in which of the following parts of the body?**

a. Shakha;
b. Sandhi;
c. Shiras;
d. Udara

*Answer*: (c)

**3. The term alopecia totalis refers to the loss of body hairs from the following except**

a. Scalp region;
b. Moustache region;
c. Beard region;
d. Pubic region

*Answer*: (d)

**4. The term Indralupta refers to**

a. Synonym of *Khalitya*;
b. A type of Marma;
c. A type of Jalouka;
d. A type of disease affecting Jalouka

*Answer*: (a)

**5. Which of the following is related to the disease Khalitya except**

a. Rujya – synonym of Khalitya;
b. Indralupta – a synonym of Khalitya;
c. Indramada – synonym of Khalitya;
d. All of the above are synonyms of Khalitya

*Answer*: (c)

**6. Dosha dominance observed in Palitya is**

a. Pitta;

b. Pitta and Vata;
c. Pitta and Kapha;
d. Vata, Pitta and Kapha

*Answer*: (b)

**7. Which part of the body is affected in Palitya?**

a. Whole body;
b. Mukha;
c. Shiras;
d. Udara and Uras

*Answer*: (c)

**8. The black colour of the hair is due to the presence of**

a. Melanin;
b. Cobalamin;
c. Albumin;
d. Heparin

*Answer*: (a)

**9. As per Sushruta, this disease is included in**

a. Kushtha;
b. Visarpa;
c. Kshudra Roga;
d. Paliroga

*Answer*: (c)

**10. Palitya (premature greying) at 30 years of age is included in ....................type of *Vikara*.**

a. Adhyatmika;
b. Adhibhautika;
c. Adhidaivika;
d. All of the above

*Answer*: (c)

### Chapter resources

**Khalitya**

- Charaka Samhita Chikitsa Sthana 26th chapter
- Sushruta Samhita Nidana Sthana 13th chapter
- https://pubmed.ncbi.nlm.nih.gov/34059240/ how to approach the patient of alopecia
- www.msdmanuals.com, www.medicalnewstoday.com
- www.practicalhealthcoach.uk,www.livingforeverything.com

**Palitya**

- Charaka Samhita Chikitsa Sthana 26th chapter
- Sushruta Samhita Nidana Sthana 13th chapter
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6290285/ Premature greying of hair: review and updates
- www.healthline.com

***

## CHAPTER

## 59

# Shlipada

### Learning Objectives

- ⇨ To understand the concept of Shlipada
- ⇨ To understand the Nidana, Panchaka Samprapti of Shlipada mentioned in Ayurveda literatures
- ⇨ To frame out the probable Samprapti Ghataka based on the progression of the disease
- ⇨ To learn about filariasis and elephantiasis in brief

## Introduction

**त्रीण्यप्येतानि जानीयात् श्लीपदानि कफोच्छ्रयात्।**
**गुरुत्वं च महत्वं च यस्मान्नास्ति कफं विना॥5॥** Ma.Ni. – 39/5

This is a disease involving *Kapha Dosha* dominance and is associated with large swelling and heaviness of the lower limb[1] in all three types of *Shlipada*. In this disease, the nature of the swelling simulates the texture of stone. In western medicine, while describing the above terminology, filariasis and elephantiasis are used. Filariasis **(see Figure 244)** is the term used when the person is having lymphatic obstruction due to live adult worm present in the lymphatics and non pitting oedema is observed during the examination. Elephantiasis[2] **(see Figure 245)** is the term used when there is enormous thickening of the scrotal skin resembling elephant's hide leading to enlargement of scrotum.

In this disease, the individual will have non pitting type of oedema as the pathogenic organism resides in the interstitial spaces occluding the path of lymphatic system.

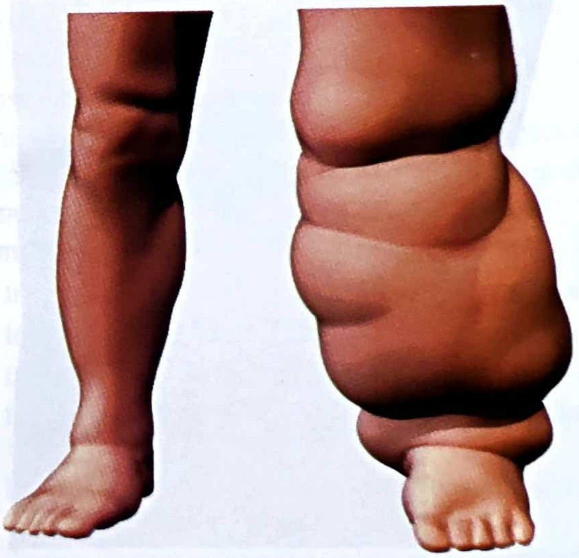


**Figure 244:** Pratyatma Lakshana of Shlipada

---

**GK**

[1] In the context of western medicine, swelling (oedema) can occur because of following reasons.

1. Increased hydrostatic pressure in the capillaries
2. Decreased oncotic pressure in the capillaries
3. Damage to the capillary wall
4. Lymphatic obstruction
5. Increased sodium and water retention
   - Increased hydrostatic pressure in the capillaries or decreased oncotic pressure and increased sodium and water retention is responsible for pitting type of oedema.
   - Lymphatic obstruction can lead to non pitting type of oedema. This is the main reason for the hard to stony hard appearance of the swelling.
   - Damage to the capillary wall will lead to inflammatory type of oedema.

[2] The most common cause of elephantiasis is Wuchereria bancrofti. The main vector responsible for the spread of this infection is Culex mosquito. The patients may remain asymptomatic or may manifest with fever, local pain, swelling, rash, tender lymph nodes and eosinophilia. Due to the eosinophilia, an individual may develop asthma like presentation in some cases.

## Derivation of Shlipada

शिलावत् पदं श्लीपदम्।। मधु, मा.नि. - 39/2
शनैः शनैर्घनं शोफं श्लीपदं तत् प्रचक्षते।। अ.स.उ. 34/19

This is a pathological condition in which the foot becomes swollen and hardened like a stone. This is a slowly progressive clinical condition. That is why this condition is known as *Shlipada*.

पारियात्रभवा याश्च विन्ध्यसह्यभवाश्च याः।
शिरोहृद्रोगकुष्ठानां ता हेतुः श्लीपदस्य च।।2 1 2।। Ca.Su. – 27/212

## Nidana of Shlipada

पुराणोदकभूयिष्ठाः सर्वर्तुषु च शीतलाः।
यै देशास्तेषु जायन्ते श्लीपदानि विशेषतः।।6।। Ma.Ni. – 39/6

The disease is commonly seen in the places having stagnant water[3] for longer time and in the places where the environment is colder in most of the times.

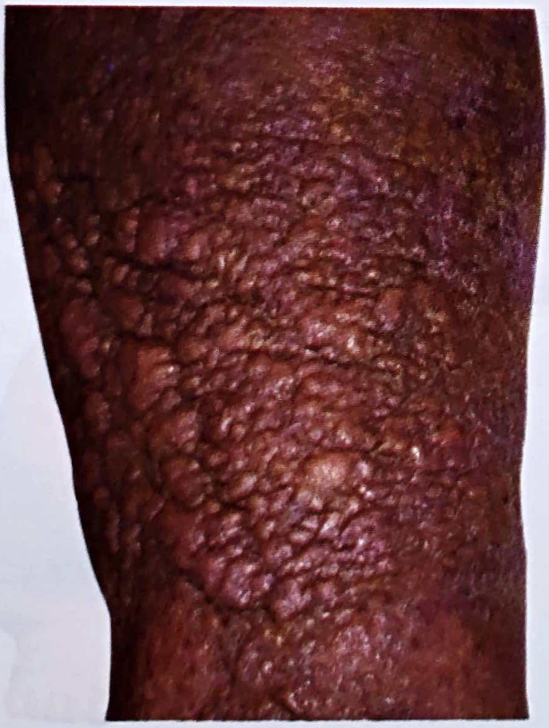


Figure 245: Kharatva of Tvak in Shlipada

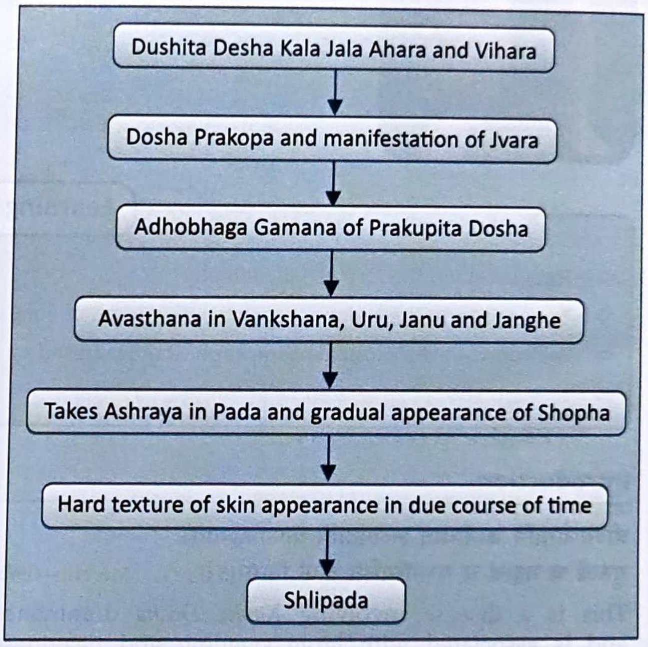
## Samprapti of Shlipada

जङ्घासु पिण्डीप्रपैदोपरिष्टात् स्याच्छ्रीपदं मांसकफास्त्रदोषात्।
Ca.Ci. – 12/98

कुपितास्तुदोषाःवातपित्तश्लेष्माणोऽधःप्रपन्नावङ्क्षणोरुजानुजङ्घाखवतिष्ठमानाः कालान्तरेण पादमाश्रित्य शनैः शोकं उपजनयन्ति तत् श्लीपदमित्याचक्षते। तत् त्रिविधं वातपित्तकफनिमित्तमिति Su.Ni. – 12/10

प्रस्थिता वणोर्वादिमधः कार्यं कफोल्वणाः।।1 8।।
दोषा मांसास्त्रगाः पादौ कालेनाश्रित्य कुर्वते।
शनैःशनैर्धनं शोफं श्लीपदं तत्प्रचक्षते।।1 9।। A.Hr.Ut. – 29/18-19

शिश्नौष्ठनासास्वपि केचिदाहुः।।
ग्रीवावंक्षणजङ्घौष्ठपादकर्णकराश्रयम्।
श्लीपदं मांसमेदोभ्यां विद्यात्।। पुष्कलावत; चक्र, च.चि. - 12/98



Dushita Desha Kala Jala Ahara and Vihara
Dosha Prakopa and manifestation of Jvara
Adhobhaga Gamana of Prakupita Dosha
Avasthana in Vankshana, Uru, Janu and Janghe
Takes Ashraya in Pada and gradual appearance of Shopha
Hard texture of skin appearance in due course of time
Shlipada

## Samprapti Ghataka

- **Dosha :** *Kapha*
- **Dushya :** *Rasa, Rakta*
- **Srotas :** *Rasavaha, Raktavaha*
- **Dushti Prakara :** *Sanga* and *Vimargagamana*
- **Udbhava Sthana :** *Amashaya*
- **Sanchara Sthana :** *Sarva Sharira*
- **Vyakta Sthana :** *Adho Shakha*
- **Agni:** *Jatharagni Mandya*
- **Ama :** *Jatharagnimandya Janya Ama*
- **Vyadhyavastha :** *Chirakari*
- **Rogamarga : ** *Abhyantara* and *Bahya*
- **Sadhyasadhyata :** *Asadhya*

## Purvarupa of Shlipada

वङ्क्षणावस्थानमेवास्य पूर्वरूपम्। Madhu, Ma.Ni. – 39/2,3

The swelling observed in the region of *Vamkshana*[4] (groin) is considered as prodromal symptom of *Shlipada*.

---

[3] When the water is stagnant at a particular space for longer time, it becomes a breeding place for the mosquitoes. Anopheles, Culex and Aedis aegypti are the different varieties of mosquitoes breed in stagnant water. Bite of these mosquitoes will lead to various infectious diseases. Biting of the Culex mosquitoes is responsible for the transmission of filariasis and elephantiasis.

[4] Swelling in the inguinal region or groin indicates the site of the lesion in lower limb. This sign indicates the lymphatic obstruction occurring in the lower limb. When the person is having chronic lymphatic obstruction, the skin becomes rough like the skin of the elephant, otherwise

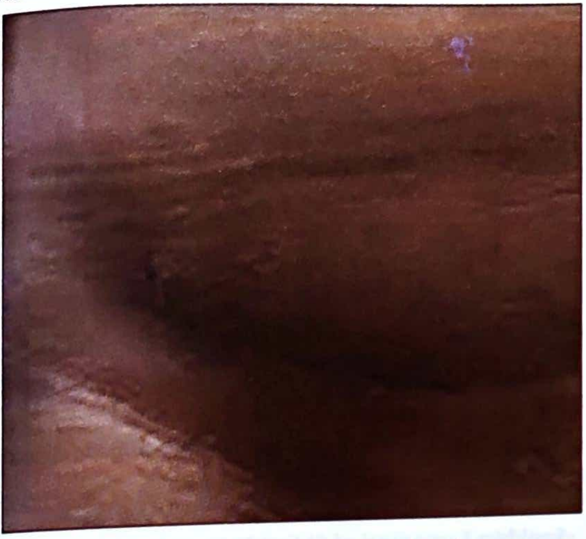


Figure 246: Purvarupa of Shlipada

## Samanya Lakshana of Shlipada

**यः सज्वरो वंक्षणजो भृशार्तिः शोथो नेणां पादगतः क्रमेण।**
**तच्छ्लीपदं स्यात् करकर्णनेत्रशिश्नौष्ठनासास्वपि केचिदाहुः॥**
Ma.Ni.39/1

The disease initially presented with manifestation of fever and severe cutting type of pain in the inguinal region. This is followed by development of oedema which reaches till the foot. The oedema turns hard in which the consistency or texture appears like stone. Therefore the term *Shlipada*. The swelling can also occur in hands, ears, eyes, genitals, lips and nose in due course of time.

**पादयोर्हस्तयोश्चापि श्लीपदं जायते नृणाम्॥**
**कर्णाक्षिनासिकौठेषु केचिदिच्छन्ति तद्विदः॥15॥** Su.Ni. – 12/15

Stony hard swelling observed in the lower limb, upper limb, ears, eyes, nose and lips

## Classification of Shlipada

**3 types:** *Vataja Shlipada, Pittaja Shlipada and Kaphaja Shlipada.*

### 1. Vataja Shlipada

**वातजं कृष्ण रूक्षं च स्फुटितं तीव्रवेदनम्।**
**अनिमित्तरुजं तस्य बहुशो ज्वर एव च॥** मा.नि. – 39/2

*Shlipada* manifested due to the vitiation of *Vata Dosha* appears black in colour. The surface of the swelling will be dry and rough. There will be appearance of cracks or fissures due to the dryness which leads to the development of severe pain. The timing and intensity of pain and onset of fever may vary and it is uncertain.

### 2. Pittaja Shlipada

**पित्तजं पीतसंकाशं दाहज्वरयुतं मृदु॥** मा.नि. – 39/3

*Pittaja Shlipada* will be having yellowish discolouration. This is associated with burning sensation and raised body temperature. The swelling or oedema will be softer.

### 3. Kaphaja Shlipada

**श्लैष्मिकं स्निग्धवर्णं च श्वेतं पाण्डु गुरु स्थिरम्॥** मा.नि. – 39/3

*Kaphaja Shlipada* has slimy or oily surface and yellowish white or pale to white in colour. The size of the swelling will be bigger when compared to other variety of *Shlipada*. But there is no variation or unstability in the size like *Vataja Shlipada*.

## Sadhyasadhyata

**तत्र संवत्सरातीतमतिमहद्वल्मीकजातं प्रसृतमिति वर्जनीयानि॥12॥**
Su.Ni. – 12/12

**वल्मीकमिव संजातं कण्टकैरुपचीयते।**
**अब्दात्मकं महत्तच्च वर्जनीयं विशेषतः॥4॥** Ma.Ni. – 39/4
**यत् श्लेष्मलाहारविहारजातं पुंसः प्रत्त्याऽपि** (Prakritya Api) **कफात्मकस्य।**
**सास्त्रावमत्युन्नतसर्वलिङ्गं सकण्डुरं श्लेष्मयुतं विवर्ज्यम्॥** मा.नि. – 39/7

- If the duration of the illness is more than one year[5]
- If the size of the swelling is big in size[6]
- If the nature of the swelling resembles ant hill[7]
- If an individual who is born with *Kapha* dominant *Prakriti*[8]
- If an individual is continuously consuming food substances which provoke *Kapha Dosha*[9]
- Profuse discharge from the oedematous swelling[10]

---

the patient may have non pitting type of oedema. As the microorganisms enter the lymphatics, this will be blocked in the lymph nodes to prevent the further entry of the microorganisms into the thoracic duct. Thus, the person may have the swelling of the groin region.

[5] When the individual is having duration of illness, i.e. swelling in the lower limb, that will lead to thickness of the skin along with non pitting type.

[6] As the size of the swelling is getting bigger, it usually takes more time to have subsidence of the swelling. The bigger the swelling, more incurability of the illness.

[7] If the swelling resembles ant hill or skin of the elephant, then it indicates the incurability of the illness owing to lymphatic obstruction.

[8] When the person is having Kapha Prakriti and the Dosha responsible for the manifestation of Shlipada is also Kapha Dosha. This stage represents the more severity of the illness. As the duration of the illness is longer, there will be the vitiation of Vata Dosha along with Kapha. This is indicative of incurability of the illness when two Dosha vitiation are seen.

[9] In Ayurveda, there is a rule if you want to treat any disease, one has to avoid the aetiological factors for the vitiation of that particular Dosha responsible for the manifestation of the disease. Shlipada is a Kapha dominant illness. If an individual is continuously consuming the Kapha vitiating factors, then such stage of the illness is considered as Asadhya (incurable) in nature.

[10] When an individual is presented with profuse amount of discharge from the oedematous swelling indicates severity in the degree of lymphatic obstruction. This feature indicates the shrinkage of interstitial compartment as the movement from the interstitial compartment to the lymphatic channels is blocked due to lymphatic obstruction.

## Key summary of the chapter

शिलावत् पदं श्लीपदम्।। मधु, मा.नि. - 39/2
शनैः शनैर्घनं शोफं श्लीपदं तत् प्रचक्षते।। अ.स.उ. 34/19

This is a pathological condition in which the foot becomes swollen and hardened like a stone. This is a slowly progressive clinical condition. That is why this condition is known as Shlipada.

- Leading a lifestyle around environment where stagnant water is commonly observed. This is also seen in conditions, where frequent exposure to cold environment is observed.

  वङ्क्षणावस्थानमेवास्य पूर्वरूपम्।

  Madhu, Ma.Ni. – 39/2,3 A swelling in the groin or inguinal region is the Purvarupa mentioned in texts.
- 3 types of Shlipada are mentioned in Ayurveda literatures. Vataja, Pittaja and Kaphaja varieties of Shlipada.
- When the individual is having the continuous exposure to Kapha vitiating factors, if the person is of Kaphaja Prakriti, if the duration of the illness is more than one year, if the swelling of the lower limb is larger and when the person is having profuse discharge through the oedematous limb are features seen in incurable *Shlipada* disease.

## Self-Assessment: Questions for Reviews

### Short essays

- Define Shlipada and explain the types
- Define the Nidana Panchaka of Shlipada
- Describe Asadhya Lakshana of Shlipada.

### Short answers

- Define Shlipada
- Enumerate Types of Shlipada
- Write a brief note of Vataja Shlipada
- Explain in brief about the Nidana of Shlipada.

### MCQs

**1. Dosha dominance observed in the patient of Shlipada is**

a. Kapha;
b. Pitta;
c. Vata;
d. Rakta

*Answer:* (a)

**2. To which type of Prakriti individual, Shlipada is considered to be Asadhya?**

a. Kapha;
b. Pitta;
c. Vata;
d. Rakta

*Answer:* (a)

**3. As per Madhava Nidana, the duration of Shlipada in case of incurability is**

a. 1 month;
b. 1 day;
c. 1 year;
d. 10 years

*Answer:* (c)

**4. Sankhya Samprapti of Shlipada is**

a. 7 types;
b. 3 types;
c. 4 types;
d. 8 types

*Answer:* (b)

**5. Stony hard swelling in the lower limb is indicative of**

a. Increased hydrostatic pressure in capillaries;
b. Decreased oncotic pressure in the capillaries
c. Capillary damage;
d. Lymphatic obstruction

*Answer:* (d)

**6. As per Charaka, Shlipada is due to**

a. Vitiation of Mamsa, Kapha and Rakta;
b. Vitiation of Medas, Kapha and Rakta;
c. Vitiation of Majja, Kapha and Rakta;
d. Vitiation of Vasa, Kapha and Rakta

*Answer:* (a)

**7. As per Madhukosha commentary of Madhava Nidana, Purvarupa of Shlipada is**

a. Swelling in the Vamkshana region;
b. Swelling in Vrishana region;
c. Swelling in Pada region;
d. Swelling in Vaksha region

*Answer:* (a)

**8. Shilavat Padam Shlipadam is said by**

a. Indu in Ashtanga Sangraha;
b. Srikanthadatta in Madhava Nidana;
c. Chakrapani in Charaka Samhita;
d. Dalhana in Sushruta Samhita

*Answer:* (b)

**9. Which of the following is considered as the Nidana of Shlipada?**

a. Ushnodaka;
b. Hamsodaka;
c. Navodaka;
d. Puranodaka

*Answer:* (d)

**10. The vector responsible for the spread of filariasis is**

a. Female anopheles mosquito;
b. Culex mosquito;
c. Aedes agypti mosquito;
d. Fly

*Answer:* (b)

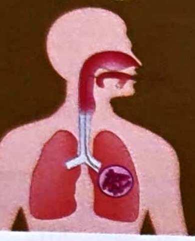
## Chapter resources

- Madhava Nidana – 39th chapter, Shlipada Nidana
- Charaka Samhita, Sutra Sthana, 27th chapter – Annapana Vidhi Adhyaya
- Charaka Samhita, Chikitsa Sthana – 12th chapter, Shotha Chikitsa Adhyaya
- Sushruta Samhita, Nidana Sthana – 12th chapter, Vriddhi Upadamsha Shlipada Nidana Adhyaya
- Ashtanga Sangraha, Uttara Tantra, 34th chapter – Granthi Arbuda Shlipada Apachi Nadi Vijnaniya Adhyaya
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2005
- www.stylecraze.com
- https://s3.amazonaws.com/HMP/c360/imported/transfer/Screen_Shot_2016-06-08_at_11.22.18_AM.png
- www.sciencedirect.com

***

CHAPTER

60



# Tuberculosis

## Learning Objectives

- To know the demographic data of the tuberculosis infection
- To know the risk factors of the tuberculosis
- To know the clinical features of tuberculosis
- To know the relevant clinical examination of the patient of tuberculosis
- To make the diagnosis and prognosis of tuberculosis
- To interpret the laboratory findings of tuberculosis

## Introduction

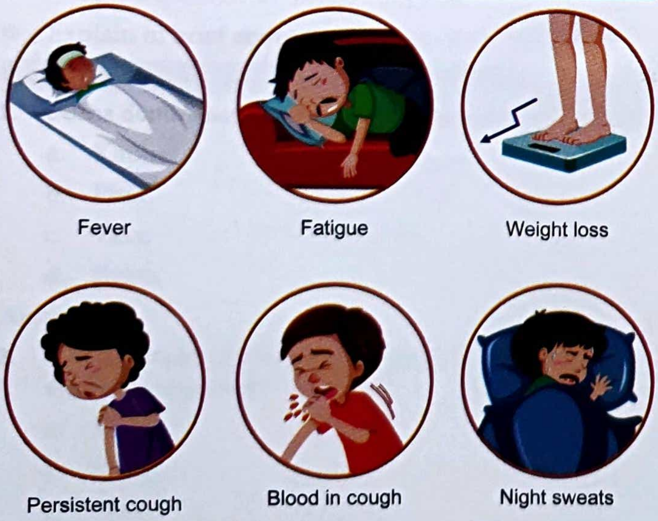


**Figure 247:** Clinical features of tuberculosis

Mycobacteria are small, slow growing, aerobic bacilli distinguished by a complex lipid rich cell envelope responsible for their characterisation as acid fast (i.e. resistant to decolorization by acid after staining with carbolfuchsin) and their imperviousness to Gram stain. This is a chronic, progressive infection with a period of latency following initial infection. Though, this can affect any part of the body, most of the affliction with the causative organism seen in lungs, intestine, bones, joints, renal system. Lung is the most common organ affected in this infection. Depending upon the involvement of the organ, clinical features are observed in the ailing individual. Diagnosis is often by sputum culture and smear. This is mainly seen in the individuals who are having compromise in immune system such as AIDS (Acquired Immuno Deficiency Syndrome).

- Tuberculosis is a chronic bacterial infection caused by mycobacterium tuberculosis **(see Figure 248)** and characterised by the formation of granulomas in infected tissue and by cell mediated immunity. It results exclusively from inhalation of airborne particles (droplet nuclei) containing Mycobacterium tuberculosis. They disperse primarily through coughing, singing and other forced respiratory manoeuvres by individuals who have active pulmonary tuberculosis and whose sputum contains a significant number of organisms (typically enough to render the smear positive).
- Droplet nuclei containing TB bacilli may remain suspended in room air currents for several hours, increasing the chance of spread of infection. However, these droplets land on the surface, it is difficult to resuspend the organisms by sweeping the floor, shaking out bed linens etc). Although such actions can resuspend the dust particles containing tubercle bacilli, these particles are far too large to reach the alveolar surfaces necessary to initiate the infection. Fomites such as contaminated surfaces, food and personal respirators do not appear to spread the infection.

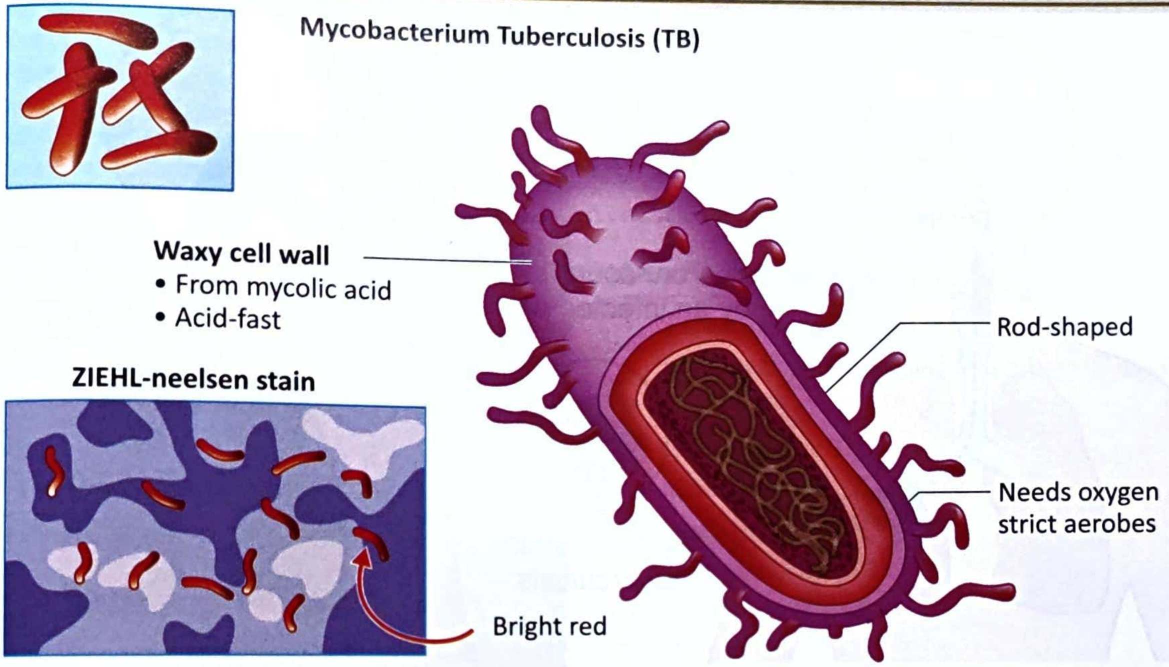


**Figure 248:** Mycobacterium tuberculosis

- The transmission of the infection is enhanced by frequent or prolonged exposure to a patient who is dispersing large number of tubercle bacilli in overcrowded, enclosed, poorly ventilated spaces; thus, people living in poverty or in institutions are at particular risk of development of the infection. Health care practitioners are at higher risk who are having more close contact with active cases of tuberculosis.
- In spite of great advances in the pharmacology and current clinical practice, tuberculosis still an infection with worldwide distribution, more common in some countries of Africa, Latin America and Asia, economically weaker sections of the population in particular.
- Other factors contribute in the higher incidence of tuberculosis are malnutrition, inadequate medicinal use, poverty, crowding, alcoholism, AIDS.
- The microorganism responsible for this infection is the tubercle bacillus, one of the well characterised and unclassified members of the genus mycobacterium. This is a rod shaped, slowly growing bacterium. Its cell wall has high acid content, which makes the bacterium hydrophobic.
- The risk factors for the development of infection are HIV infection, chronic renal failure, diabetes, intravenous drug use, gastrectomy, alcoholism, low socio economic status.
- Due to poor management owing to the long term treatment of the infection by the patients, led to the resurgence of the infection leading to Multi Drug Resistant Tuberculosis (MDR- TB) and Extensively Drug Resistant Tuberculosis (XDR-TB). This is even attributable to inadequate drug supplies, HIV coinfection, institutional transmission and inadequate diagnostic laboratory facilities.

## Pathology

- Tubercle bacilli initially cause a primary infection, which only rarely causes acute illness. Most (about 95%) of the primary infections are asymptomatic and followed by a latent (dormant) phase. Infection is not transimissible in the primary stage and is never contagious in the latent phase.
- Primary infection: Infection requires inhalation of particles small enough to traverse the upper respiratory defences and deposit deep in the lung, usually in the subpleural air spaces of the lower lung. Large droplets **(see Figure 249)** tend to lodge in the more proximal airways and typically do not result in infection. Infection usually begins from a single initial focus.
- To initiate infection, tubercle bacilli must be ingested by alveolar macrophages. Tubercle bacilli that are not killed by the macrophages actually replicate inside them, ultimately killing the host macrophage (with the help of CD8 lymphocytes); inflammatory cells are attracted to the area causing a focal pneumonitis that evolves into the characteristic tubercles seen histologically.
- In early weeks of infection, some infected macrophages migrate to regional lymph nodes (e.g. hilar, mediastinal), where they access the blood stream. Organisms may then spread hematogenously to any part of the body, particularly the apical posterior portion of the lungs, epiphyses of long bones, kidneys, vertebral bodies and meninges.

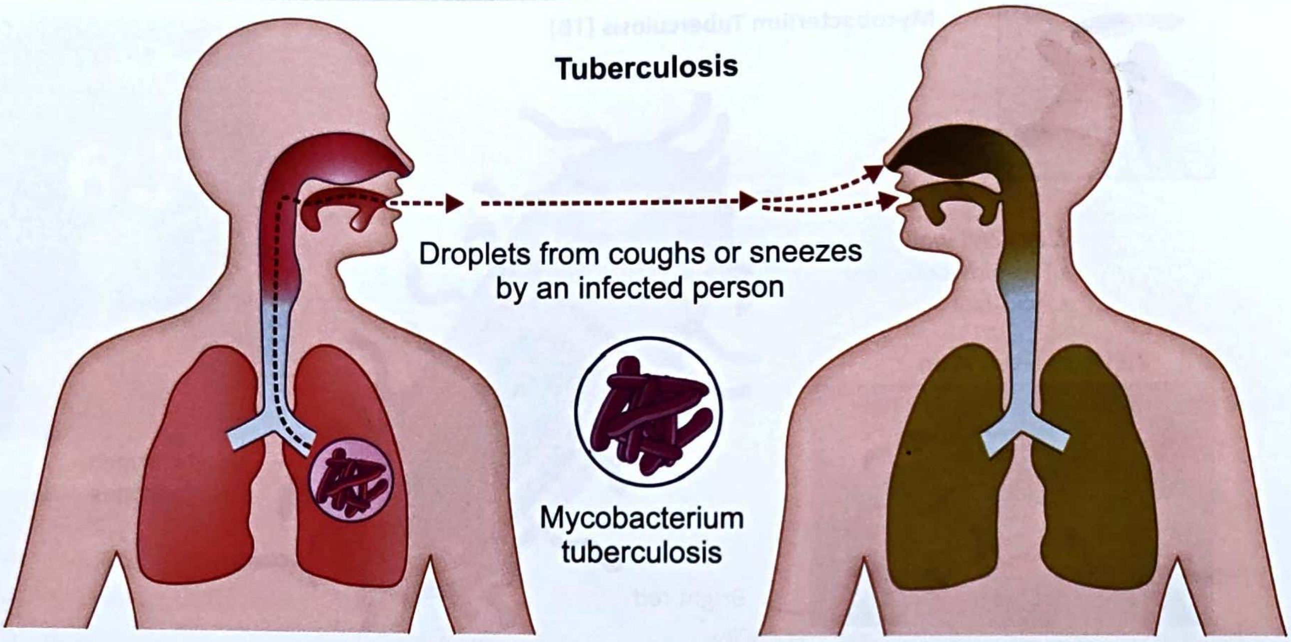

Tuberculosis
Droplets from coughs or sneezes by an infected person
Mycobacterium tuberculosis

**Figure 249:** Transmission of tuberculosis

- In 95% of the cases, after about 3 weeks of uninhibited growth, the immune system suppresses bacillary replication before the symptoms or signs develop. Foci of infection in the lung or other sites resolve into epithelioid cell granulomas, which may have caseous and necrotic centres. Tubercle bacilli can survive in this material for years; the balance between the host's resistance and microbial virulence determines whether the infection ultimately resolves without treatment, remains dormant or becomes active.
- Less often, the primary focus immediately progresses, causing acute illness with pneumonia (sometimes cavitary), pleural effusion and marked mediastinal or hilar lymph nodes enlargement.
- Extrapulmonary TB at any site can sometimes manifest without the evidence of lung involvement. TB lymphadenopathy is the most common extrapulmonary presentation.
- The course varies greatly depending upon the virulence of organism and the state of host defences.
- Acute respiratory distress syndrome (ARDS), which appears to be due to hypersensitivity to TB antigens, develops rarely after diffuse haematogenous spread or rupture of a large cavity with spillage into the lungs.

## Clinical features

- In active pulmonary TB, even moderate or severe disease, patients may have no symptoms except not feeling well, anorexia, fatigue, and weight loss, which develop gradually over several weeks. Cough is most common. At first, it may be minimally productive of yellow or green sputum, usually on rising, but cough may become more productive as the disease progresses. Haemoptysis occurs only with cavitary tuberculosis. Low grade fever is common but not invariable. This will be associated with chills, night sweats, weight loss, fatigue, finger clubbing.
- In case of advanced infection, chest pain, prolonged cough with sputum are seen.
- Anorexia, weight loss, lassitude, night sweats, evening rise of temperature, cough, sputum and haemoptysis are seen in case of pulmonary involvement.

### Complications include

- Massive haemoptysis, cor pulmonale, fibrosis, emphysema, atypical mycobacterial infection, aspergilloma, pleural calcification, bronchiectasis are some of the pulmonary complications.
- Laryngitis, enteritis, ano rectal disease, amyloidosis are some of the non pulmonary complications.

## Diagnosis of tuberculosis

### Laboratory methods

- Skin test/ tuberculin test/ manteaux test
- Blood test
- Sputum smear microscopy
- Radiography
- Chest x ray

Pulmonary tuberculosis is suspected based on the chest X-ray **(see Figure 250)** taken while evaluating respiratory symptoms (cough ≥ 3 weeks, hemoptysis, chest pain, dyspnoea), an unexplained illness, FUO (fever of unknown origin) or a positive tuberculin test. Chest x ray will be having multinodular infiltrate above or behind the clavicle (the most characteristic location, most visible in an apical lordotic view or with CT) implies reactivation of TB. Middle and lower infiltrates are non specific, but primary TB is suspected. Calcified hilar nodes are seen.

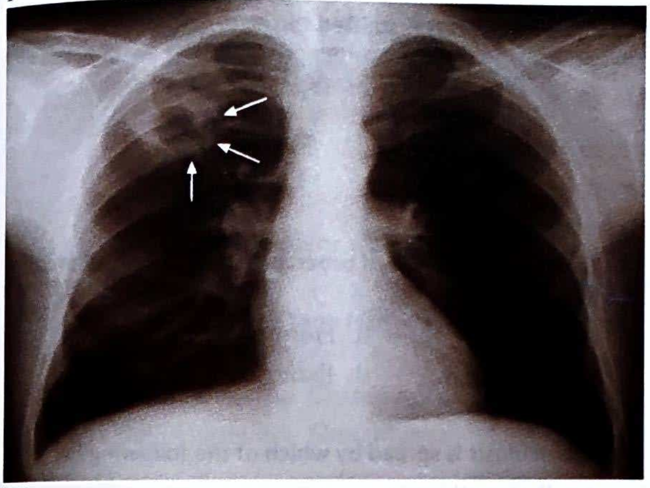


**Figure 250:** Chest x ray of tuberculosis

### Sputum test

AFB test is performed for the diagnosis of TB. If the sputum is not produced and TB is suspected, sputum should be taken out from the respiratory with much precaution wearing face masks.

### Skin testing

Mantoux test or PPD test is performed in the diagnosis of TB. Here, 5 tuberculin units (TU) of PPD in 0.1 ml of solution is injected on the volar forearm. This injection is given intradermally, not subcutaneously. A well demarcated bleb or wheal should result immediately. The diameter of induration (not erythema) transverse to the long axis of the arm is measured 48 to 72 hours after injection.

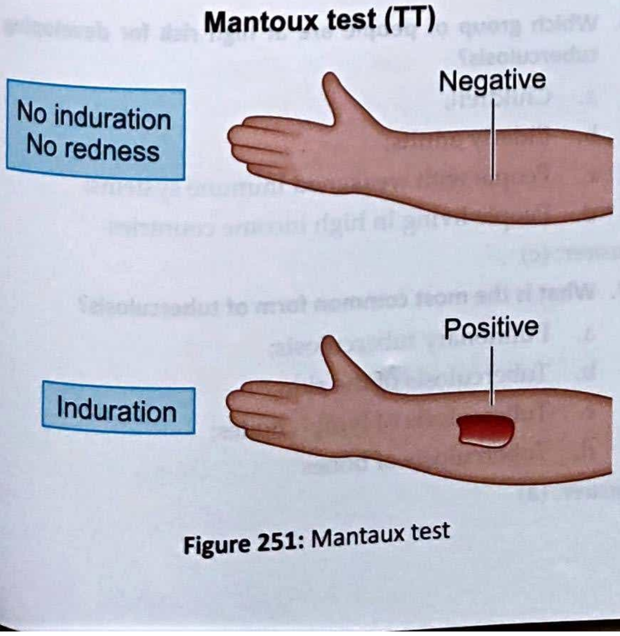


**Figure 251:** Mantaux test

- **5 mm:** Patients at high risk of developing active TB if infected.
- **10 mm:** Patients with some risk factors, such as injection drug users, diabetes, head or neck cancer or patients aged > 70 years
- **15 mm:** Patients with no risk factors.

### Areas of extrapulmonary tuberculosis

- Tuberculosis pericarditis and peritonitis
- Laryngeal and endobronchial tuberculosis (TB)
- Skeletal TB
- Genitourinary TB
- Meningeal TB
- Ocular TB
- Gastrointestinal TB
- Cutaneous TB
- Military TB
- Silico TB
- TB in AIDS
- Renal TB

### Prognosis

- In immune competent patients with drug susceptible pulmonary TB, even severe disease and large cavities usually resolve if appropriate therapy is instituted or completed.
- TB causes death in 10% of the patients. Disseminated TB and TB meningitis may be fatal in 25% of the cases.
- TB is much more aggressive in immunocompromised patients and if not appropriately or aggressively treated, may be fatal in as little as 2 months children from its initial symptoms.
- In MDR-TB, mortality can be observed in 90% of the cases. However, poor outcomes are expected in XDR-TB cases.

### MCQs

1. **Tuberculosis is caused by**

   a. Bacteria; b. Virus;
   c. Fungus; d. Protozoa

*Answer:* (a)

2. **The part of the body involved in bovine tuberculosis is**

   a. Lung; b. Kidney;
   c. Intestine; d. Bone

*Answer:* (c)

3. **Which of the following is not true in the diagnosis of tuberculosis?**

   a. Lymphocytosis;
   b. Neutrophilia;

c. Positive tuberculin test;
d. ESR > 100 mm in 1st hour

*Answer:* (b)

**4. The maximum time required to confirm the Mantaux test for tuberculosis is**

a. 14 hours; b. 24 hours;
c. 90 hours; d. 72 hours

*Answer:* (c)

**5. Which part of the body is injected with injection for Mantaux test while doing the diagnosis of tuberculosis?**

a. Scalp; b. Abdomen;
c. Forearm; d. Great toe

*Answer:* (c)

**6. Which of the infection is being spread by droplet infection?**

a. Tuberculosis; b. Malaria;
c. Cholera; d. Gastroenteritis

*Answer:* (a)

**7. Which of the following disease is not spread by droplet infection?**

a. Influenza; b. Tuberculosis;
c. Pneumonia; d. Typhoid

*Answer:* (d)

**8. All of the following are the symptoms of pulmonary tuberculosis except**

a. Weakness and fatigue;
b. Decreased body temperature;
c. Weight loss;
d. Prolonged cough with sputum and blood

*Answer:* (b)

**9. What is Mantaux test?**

a. Sputum sample microscopy;
b. Tuberculin skin test;
c. Blood test;
d. Urine test

*Answer:* (b)

**10. Which day was declared as World Tuberculosis Day by World Health Organisation to celebrate World Tuberculosis Day?**

a. 24th March;
b. 7th April;
c. 14th November;
d. 24th April

*Answer:* (a)

**11. The scientist who discovered tuberculosis was**

a. Louis Pasteur;
b. Robert Koch;
c. Jean Antoine Villemin;
d. Calmette and Guerin

*Answer:* (b)

**12. Tuberculosis is transmitted through**

a. Infected water;
b. Infected hands;
c. Infected blood;
d. Infected air

*Answer:* (d)

**13. The causative factor of tuberculosis produces tuberculin. It is an**

a. Enzyme; b. Hormone;
c. Endotoxin; d. Exotoxin

*Answer:* (c)

**14. Tuberculosis is spread by which of the following?**

a. By breathing;
b. By coughing
c. Singing
d. Sneezing
a. a and b
b. Only a
c. Only b
d. All of the above

*Answer:* (d)

**15. What is the most common complication of tuberculosis?**

a. Pneumonia;
b. Sepsis;
c. Meningitis;
d. Drug resistant tuberculosis

*Answer:* (d)

**16. Which group of people are at high risk for developing tuberculosis?**

a. Children;
b. Elderly adults;
c. People with weakened immune systems;
d. People living in high income countries

*Answer:* (c)

**17. What is the most common form of tuberculosis?**

a. Pulmonary tuberculosis;
b. Tuberculosis of the skin;
c. Tuberculosis of lymph nodes;
d. Tuberculosis of bones

*Answer:* (a)

**18. Which organ system is most commonly affected by tuberculosis?**

a. Digestive system;

b. Reproductive system;

c. Respiratory system;

d. Musculo skeletal system

*Answer:* (c)

**19. What is the most common primary mode of transmission of tuberculosis?**

a. Sexual contact;

b. Insect bites;

c. Airborne droplets;

d. Contaminated food or water

*Answer:* (c)

**20. Which of the following term is used to denote tuberculosis?**

a. Patholosis; b. Granulomis;

c. White plague; d. Sinusithis

*Answer:* (c)

## Chapter resources

- https://www. yashodahealthcare. com/blogs/tuberculosis
- The Merck Manual of Diagnosis and Therapy by Robert S Porter and Justin L Kaplan, 19th edition, Merck Sharp & Dohme Corp, New Jersey, 2011
- Golwalla's medicine for students by Aspi F Golwalla and Sharukh A Golwalla, edited by Milind Y Nadkar, 25th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2017
- Chamberlain's symptoms and signs in clinical medicine by Colin Ogilvie and Christopher C Evans, 12th edition, Butterworth-Heinemann Publishers, 1997
- Best & Taylor's physiological basis of medical practice by O P Tandon and Y Tripathi, 13th edition, Wolters Kluwer Health (India) Pvt. Ltd, Gurgaon, 2012
- Textbook of Medical physiology by Arthur C Guyton and John E Hall, 11th edition, Saunders Elsevier publications, Philadelphia, 2006
- Textbook of pathology by Harsh Mohan, 5th edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2005
- www.osmosis.org
- www.everydayhealth.com
- www.msdmanuals.com
- www.labpedia.net
- Website materials

***